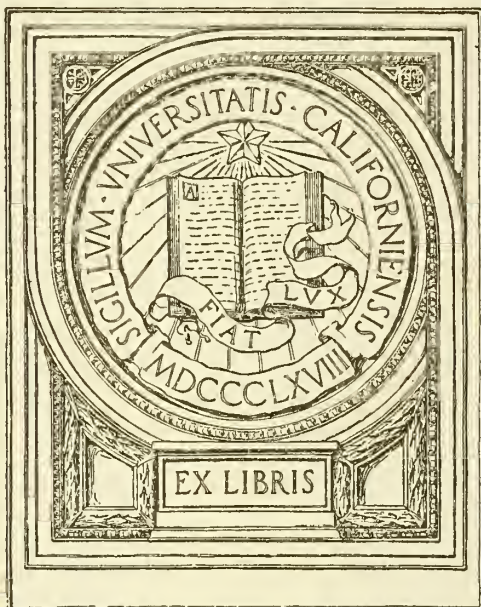



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THE EVOLUTION OF MEDICAL TEACHING IN NEW ORLEANS.*

ERNEST S. LEWIS, M. D.,

NEW ORLEANS.

The medical department of the University of Louisiana, since 1834, now Tulane since 1884, is the oldest medical college in the southwest and had existed as a private institution since 1831. When merged in the University, it was its sole department: the law and academic being established later.

The rights and privileges it possessed prior to the change were not materially affected, it was practically autonomous until during the deanship of Dr. Chaillé, by faculty vote it became in deed, and in fact, an integral part of the university.

I matriculated at the opening of the session of 1859-60, sixty-eight years ago. The teaching staff numbered nine, including two demonstrators of anatomy. There was no entrance examination, to read and write were the only requirements. Each professor collected the fees for his lecture card, later this was assumed by the dean and after the surrender at the headquarters of the university.

Two annual sessions of four months each were required for graduation. In 1879 it was extended to four and a half months,

a few years later to five, and in 1893 to six months; after 1909 to nine months.

The course of instruction in my student days consisted in attendance on seven lectures daily, one of them clinical in the amphitheatre of the Charity Hospital, two hours of bedside clinics in the wards with no division of the students in classes until 1869, and two hours of dissection in the laboratory of practical anatomy. I attended but one course of lectures having become an interne of the Charity Hospital at the close of the session which exempted me from attendance on lectures and was not regretted as I profited far more from my hospital experience.

The examinations were oral until about 1902, when written were required. Ignorance and illiteracy characterized the mental equipment of the majority of the student body, which did not improve until many years after the Civil War. The examinations were perfunctory and superficial, with but few rejections.

No change occurred in the staff until 1867 when a lecturer and instructor was appointed for eye and ear affections: a year later chiefs of clinics; in 1886, a lecturer and clinical instructor for diseases of the skin; in 1887, a pharmaceutical laboratory for pharmacy students only; in 1889, a laboratory of histology and bacteriology and a demonstrator; in 1890, one lecturer and clinical instructor of physical diagnosis, and also one for diseases of children, and in 1891, one lecturer and clinical instructor on minor surgery.

*This address and the following three addresses were delivered at the Semi-Centennial Anniversary of the Orleans Parish Medical Society, May 7, 1928.

As Dr. Chaillé states, from whose historical summary I obtained these data, the number of special studies in all branches of medicine taught were largely increased between 1885 and 1891, from 11 to 16, the laboratories from 2 to 5, and the number of teachers from 19 to 41, and marked the first notable evidence of progress since 1834.

The only thing noteworthy from that date until 1909 was the admission of women to medical studies, to whom that privilege had been granted many years before in the pharmaceutical course.

In 1903, the Richardson Memorial, now the Hutchinson, was completed and occupied, with well equipped laboratories of pharmacy, chemistry, practical anatomy, microscopic and operative surgery. In 1909, the Richardson Memorial, with its well equipped laboratories was opened and occupied for the use of the first and second course students, very much to their advantage in the study of the elementary branches.

While progress continued slowly from 1901, it assumed a phenomenal rise from 1909 to the present day. The annual sessions were extended to four years of nine months courses each and for entrance requirements, a first-grade teacher's certificate and a year of academic studies, since increased to two years, and perhaps later to an academic degree, as required in some of the Northern colleges.

Besides the changes mentioned was the infusion of new blood in the appointment of four men of distinction as chiefs of departments, two of whom still continue in the faculty. Two others of like distinction in the medical world were secured as chiefs of the Chairs of Medicine and Surgery, within recent dates, who will give their undivided attention to college work and not to outside practice as was heretofore permitted the chiefs of the practical chairs which was not to the best interests of the students and university; a wise and pro-

gressive measure but recently adopted by the faculty and Board.

The teaching facilities have been greatly enlarged; there are in active operation, ten teaching and ten department laboratories. The staff now numbers one hundred and fifty-one, disposed as follows: ten to anatomy, ten to physiology, five to materia medica and pharmacy, four to biochemistry, nine to pathology and bacteriology, eight to pediatrics, forty-four to medicine, thirty-five to surgery, two to tropical medicine. This permits the division of students into small sections, which enables them to be more efficiently taught.

Among the causes most effective in overthrowing preconceived notions, views and theories entertained and taught dogmatically in the schools regarding diseases of a contagious and infectious nature, was the discovery by Pasteur and other eminent scientists of the role of micro-organisms in their production, which established the germ theory of infections and contagions, conveyed in many instances by insect carriers, as the mosquito, the flea, fly and other insects.

This knowledge led to the destruction of the mosquito and its breeding places, banished yellow fever from our midst, and the wholesale slaughter of rats and their flea carrier of bubonic infection, of which we had a few sporadic cases, no doubt prevented its spread. Furthermore, we learned to utilize our enemies, dead and alive, in manufacturing vaccines, anti-toxins, serums for immunization and cures as is done now every day in typhoid fever, rabies, diphtheria and other affections. The roentgen-ray having come into use shed further light on the organs of the cavities as to their relations, normality or abnormality and pathological states. Great strides have been made in regional studies, heart, lungs, digestive and other organs of the body, necessitating far more intensive study and instrumental skill, possible to acquire in the course of studies for the doctorate to attain efficiency, which of

necessity developed specialization, as also the great advance along all lines of medical teaching.

In surgery and obstetrics bacteriological discoveries proved as revolutionary as in medicine after successful measures were adopted giving protection from infection.

It extended the field of surgical activities to the abdomen, removed the fear attending opening the peritoneal cavity which general fatalities attending on such operations in the past had endangered.

Then followed an era of the most brilliant achievements in surgical work, which raised surgery to the highest peak of glory. It was its renaissance and that of medicine and effected radical changes in medical and surgical teaching, with which this school kept pace and some of the earliest pioneer work in abdominal and gynecic surgery in the South was developed by one of its staff.

So large had the field of medical studies extended that division of labor followed as a necessity, establishing specialties which side-tracked the family doctor and his ideal relations with the families in his clientele.

Fear of Hospital Is Unwarranted.—Fear of the hospital should have no place in the mind of the modern citizen. In the days when medical science partook of the nature of witchcraft, mystery pervaded every branch of its practice. But the keynote of modern scientific medicine is confidence and hope. A hospital, therefore, is a place of sympathy and good feeling, a refuge in time of trouble. Mr. Oyler divides hospital critics into two groups: the wiseacres, who assume an air of omniscience when they really know little; and the timid of spirit, who are genuinely fearful. The hospital critic is inclined to compare the hospital unfavorably with his home, his club and his hotel. Mr. Oyler believes that if a fair comparison is made the critic will find that personal service is carried out to a surprising degree. The timid type of person is afraid because of the terrible stories he has heard of unpleasant experiences. Most of such stories are untrue or at least exaggerated.—Oyler-Weston, *Hygeia*, 6:28, 1928.

THE EARLY HISTORY OF THE ORLEANS PARISH MEDICAL SOCIETY.

A. E. FOSSIER, M. D.,

NEW ORLEANS.

There are today, in the Orleans Parish Medical Society, just a few fortunate members, who can send recollections reverberating to the period of the incipency of this Association. The more numerous, less favored, ones, became participants in its activities at different periods of its progress.

I have assembled those earlier happenings, as well as the events of subsequent times, in the following modest historical review.

The Orleans Parish Medical Society was organized in conformation to a resolution presented by Dr. Chaillé at the first convention of the State Society on January 14-15-16, of the year 1878: "That every member of this Association be charged with the duty of endeavoring to secure the organization of a medical society in each of the parishes of the State, prior to April, 1879."

The birth of the Orleans Parish Medical Society was heralded in the following editorial in the May issue of the *New Orleans Medical and Surgical Journal* for the year 1878, as follows:

"A meeting of medical gentlemen was held on Monday evening, April 22, inst., to establish a parish medical society in affiliation with the State Medical Association. The meeting was well attended. The only action taken was the appointment of a temporary chairman, Dr. Logan, of a committee on permanent organization, viz: Drs. Chaillé, Turpin and Herrick. This committee will report on Monday evening, May 6, when it is hoped that the objects of the meeting will be successfully accomplished."

And that *Journal*, for the following month, announced in an editorial entitled

"Orleans Parish Medical Society," that under this title a number of medical gentlemen have organized a society, which is to be affiliated with the State Medical Association. The president was Dr. Charles Turpin, and the Vice-Presidents were Drs. S. S. Herrick, Ernest Lewis, and J. F. Davidson. The secretaries were Dr. A. B. Miles and D. Jamison.

Thus is recorded the first or organization meeting of the Orleans Parish Medical Society, which was held May 6, 1878.

Dr. Chaillé made the assertion, that most, if not all, of the forty-six physicians who were the first representatives of the Parish of Orleans to the State Medical Meeting were the founders of the Orleans Parish Medical Society. This role of honor comprises the following names: Drs. W. G. Austin, J. C. Beard, S. W. Bemiss, Henry Bezou, C. J. Bickman, W. P. Brewer, P. C. Boyer, J. C. Carter, S. E. Chaillé, A. Chastant, Samuel Choppin, J. P. Davidson, F. S. Drew, J. B. Davis, L. A. d'Estampes, C. Faget, G. C. Faget, J. A. G. Fisher, A. G. Friedrichs, G. B. Gaudet, A. P. Gourrier, S. L. Henry, S. S. Herrick, Joseph Holt, F. Jamison, Joseph Jones, Thomas Layton, Samuel Logan, J. P. Lehde, E. S. Lewis, F. Loeber, A. B. Miles, W. S. Mitchell, Geo. K. Pratt, T. G. Richardson, M. E. Schlatter, F. D. Schmidt, M. Schuppert, L. F. Solomon, Howard Smith, H. S. Steinau, C. H. Tebault, C. Turpin, H. A. Veazie, J. M. Watkins.

The circumstances leading to the organization both of the State and Parish Societies, as well as their purposes and aims, are so closely interwoven, that a history of the latter without a perusal of the former is incomplete.

Due credit must be given to the Shreveport Medical Society, and to the defunct Plaquemines Parish Medical Society, for sounding the clarion call, which assembled the representatives from the different parishes, for the purpose of organizing a State Society to conform to the plans of the American Medical Association. In an-

swer to the appeal of these two societies, a circular letter calling a medical convention to convene in the building of the Medical department of the University of Louisiana, now the Tulane, on the 14th day of January, 1878, was issued from New Orleans. Dr. Chaillé wrote that after a session of three days, spent in perfecting an organization and preparing for efficient future action, the Society adjourned on the sixteenth of January, to meet in New Orleans, on Wednesday, April 9, 1879; and that the proceedings of "*the first and only session*" have been published.

That year the Louisiana State Medical Society sent delegates to the convention of the American Medical Association, held at Buffalo, New York, and was represented for the first time in that body. An examination of the Transactions of the American Medical Association shows that Dr. C. P. Langworthy and Dr. Ernest S. Lewis, were present at that meeting as representatives of the Louisiana State Medical Society. The Orleans Parish Medical Society was represented by Dr. S. L. Henry. Dr. T. G. Richardson was present as a permanent member of the Association, and was also its President.

This history would be only an epitome of dry events, and the narration of uninteresting facts, without a consideration of the motives, the sentiments and the reasons, which influenced not only its success, but its errors and frustations. It is also befitting that the prevailing conditions existing in the medical profession antedating the founding of the society be analyzed.

We are greatly indebted to Joseph Holt for his fearless exposé of the chaotic conditions existing prior to the advent of this Society, whose semi-centennial we are celebrating tonight. His presidential address to the New Orleans Medical and Surgical Association delivered on December 2, 1882, is one of the most interesting documents in the annals of the history of the local profession. He said:

"Twelve years ago (1870) the only medical organization existing in New Orleans, after a few months of feverish and fretful life, died violently and was buried in merited obscurity, besides its predecessors; nearly all of tender age, none of them honored and regretted at their death. Anarchy reigned in our profession, and our wisest men had well nigh abandoned hope. Not only had the repeated attempts to establish a permanent organization failed, and this time disgracefully; but like noxious weeds, these left behind them baneful seeds scattered broadcast upon the fertile soil of our worse selves. They sprouted and grew and brought forth fruits—hatreds, incriminations and recriminations, back-biting, quarrelling, strife, and all manner of uncharitableness. Even casual conversation was burdened with the recital of some injurious story or severe criticism of another. With a few exceptions of personal predilection, physicians avoided each other with suspicion and contempt. The spirit of Esau possessed us."

A retrospection, although difficult because of the scarcity of medical news of that time, will show that the profession was divided into two camps: the dissenters, and the oligarchy. The former were principally recruited from the younger doctors, whose liberality and independence is to be greatly commended, because, today, we are indebted to them for the high standard of ethics, the amicable relationship and the spirit of tolerance, which have prevailed in the profession of this city many years. The latter, the oligarchy, who judging from the remaining records of that time, from the writings of Dr. Joseph Holt, a contemporary, and from an analysis of the roster of the officers and members of the New Orleans Medical and Surgical Association, for the year 1873, it is logical to assert, was composed principally of the older doctors and the teachers of the Medical College. Dr. Holt further tells us: "that the only notion of an Association that coterie had, was based on a huge consti-

tution; a lot of statutory laws, called by them a code of ethics, which, among other things, provided for the establishment of an amusing little tribunal, a sublime mimicry of magisterial dignity, called a court medical, or some such terrifying title, that proved as effective as a Chinese gong in a battle; a sort of criminal court or inquisitorial judiciary, composed of a set of doctors, some of whom were refreshingly immaculate and peculiarly qualified as censors. These were to say whether a man was to be humbled and declared in public disgraced, or acquitted, or pardoned. They could disgrace but could not exalt—jealousy forbade! However, the code was all right; the only one all wrong was the egregious simpleton who deliberately permitted any set of men such extraordinary authority over himself: selling his birthright for less than a mess of pottage. But they did do it! and history has recorded that the very men who were foremost in enacting the laws were the first to defy them."

In 1873, a few of the most progressive and active members of the profession rebelled against the prevailing conditions, and with the hope of accomplishing the much needed reforms, established the New Orleans Medical and Surgical Association. Those young men who held the meeting in which that society was conceived were revolutionists. Their *coup d'etat* liberated the profession from an obnoxious code of ethics which provided an immunity to a privileged coterie, whilst exerting unreasonable constraint on a less favorable majority.

From an editorial in the New Orleans Medical and Surgical Journal for the month of March, 1874, the following is quoted:

"During the latter part of last year some of the physicians of this city determined to found a new medical association, who thus seem to have resolved that the supineness of their seniors should not become a reproach to them."

The reproof of these young men is expressed in the opening clause of their constitution and rules written in 1873, which reads: "For the mutual improvement, instruction and interchange of opinions and observations, the discussion of medical subjects, and the cultivation of kindly feelings among the members of the medical profession of New Orleans, the founding of a medical association is deemed advisable." The constitution that was framed claimed no authority outside of the meeting room, and exacted nothing more than regularity of attendance, the payment of dues, and the opening of discussion when appointed. The only provisions for membership were that an individual proposed must be a regular graduate of medicine, of good moral standing; and that a proven violation of the criminal law of the land was *ipso facto* an expulsion. The following were the signers of that declaration of independence: Drs. F. Loeber, President, and W. H. Watkins, Secretary. W. P. Brewer, J. J. Castellanos, J. M. Cullen, Oscar Czarnowski, L. G. Durr, C. A. Gaudet, V. Grima, S. S. Herrick, Joseph Holt, R. R. Hopkins, Frank Hawthorn, O. R. Lanng, Y. R. Lemonnier, Sam Logan, L. F. Solomon, R. J. Mainegra, L. S. McMurty, O. W. Perry, A. Pettit, Jos. Schmittle, F. T. Shepard, E. Souchon, Warren Stone.

It is a fact that, with the birth of the New Orleans Medical and Surgical Association, there also came into existence a kindlier feeling among physicians, and a renaissance of scientific activities. We may tonight repeat the words of Dr. Joseph Holt, that a great work has been accomplished; a great change wrought; silently, slowly, almost imperceptible. So great a change has taken place, indeed, that the medical profession in New Orleans of today, is no more like that of ten years ago, and we may add, sixty years ago, than peace and quiet, and contentment of mind, are like the wrangling of passions and perditions.

The first nine years of the existence of the Orleans Parish Medical Society were uneventful. It was somnolent. Its contributions to the medical literature of the day were scant. Its meetings were not regularly attended, because of the neglectful indifference of its membership. The same lethargy prevailed in the Louisiana State Medical Society. There were barely fifty members in the Parish Medical Society at the end of the year 1886, evidencing that it had not grown in membership during the first eight years of its existence.

A few of the younger doctors sensing that a strong active medical society would redound to the greater good of the profession, attempted to rejuvenate the Orleans Parish Medical Society. With this end in view they thought that Dr. Davidson, the Nestor of the profession of that time, beloved by all his confreres, especially the younger ones, was the logical individual to accomplish it. At the annual meeting in March, 1887, they elected him to the presidency of the Parish Society, and Dr. Chassaignac was selected secretary in order to assist in the more active duties.

Dr. Chassaignac wrote that at that time, the few members who still took an active interest in the two societies, having realized that they were the ones who were chiefly supporting the Orleans Parish Medical Society, as well as the New Orleans Medical and Surgical Association, which also had fallen into a state of innocuous dessuetude, after having been prosperous and very active for many years, came to the conclusion that this was a waste of energy and time, and that the two societies should be consolidated. For this purpose a committee was appointed to confer with the New Orleans Medical and Surgical Association. In April, 1887, this committee reported that it had offered the New Orleans Medical and Surgical Association to resign everything to it and to become part and parcel of the Association, provided it became affiliated with the State and National Association, thereby adopting

their code of ethics. A majority favored the amalgamation, but as it failed to receive unanimous sanction, the committee was in favor of dropping the matter.

The year 1890, however, was notable for the achievement of the unification of the medical societies of the city. The New Orleans Medical and Surgical Association having disbanded, donated the balance of its funds, about \$60.00, to the Medical Library Association, which shortly after, also became absorbed by this society. Dr. Chassaignac stated that the Orleans Parish Medical Society thus became the only medical society here and included all the local men who showed an active interest in medical matters and organization.

The same blight seems to have affected the Parish and State Societies, and it is more than a coincidence, that this amalgamation was the needed stimulus which injected the virility and enthusiasm which spelled the success of both organizations.

Dr. Bemiss and Layton read papers at the first scientific meeting of the society held June 24, 1878.

We are indebted to the activities of the following members for the survival of the Society through the first years of its existence: Drs. Bemiss, Chaillé, Choppin, Cullen, Bickham, Copes, Davidson, Faget, Herrick, Henry, Jones, Friedrichs, Levy, Layton, Lewis, Miles, Pratt, McCutcheon, Lawreson, Schmidt, Turpin and W. Watkins.

A rejuvenation of the Society took place in 1887, when Dr. Davidson was elected President and Dr. Chas. Chassaignac, Secretary. From that time authentic records were kept of the Society's transactions.

The Society discussed for the first time the question of hospital abuse, May 18, 1890. The same day the house warming of its first home took place. A dream was realized, and an old but overwhelming ambition was at last achieved. It had dispirited and vexed the members not to

own their own home, and so be forced to dependence upon others. This fact is attested by a report of the domicile committee of that year, which said:

"It is greatly desirable that this Society should have a place of meeting of its own, either by rental or purchase, and not be dependent upon the good will and generosity of others."

The home was an independent, one-story building, which consisted of two large rooms and a wide hall, situated on University Place, half a block from Canal, which was formerly the office of Dr. Joseph Jones. The place was leased for the modest rental of \$20.00 per month. In order to finance the new home, the dues were raised from \$5.00 to \$12.00 per year. The membership totaled about 140 members. Dr. Callan was then president. Dr. Fomento, chairman of the domicile committee, in his report to the Society, on that night, said:

"I am happy to add that my distinguished friend and right bower, Dr. E. D. Martin, has consented to act as godfather to the newly born. May we not properly apply to him the French proverb: 'Un parrain est un second père lorsqu'il n'est past le premier.'"

If this city is to achieve pre-eminence as a medical center, it will be the result of three essential factors: schools of medicine, a great hospital having almost unlimited facilities, and the last but not least, a medical library.

The history of this Society would be incomplete without mention of its library. Its evolution is interesting.

In 1887, a medical library was organized in this city intended for the use of physicians and pharmacists. It was called the "Louisiana Medical Library Association." It was housed in the Medical College of Tulane University. The dues were \$5.00 per annum. Only 39 physicians availed themselves of the privilege of membership. A contemporary editorial

tells us that: "The medical library belonging to the Tulane University will be brought down from its hiding place in the garret of the Tulane Hall, and with the acquired and loaned volumes of the Library Association, will form a very respectable beginning of a library which should and which we believe will steadily increase in usefulness to the profession of Louisiana." The officers of the Library Association were Drs. H. W. Blanc, President, Edmond Souchon, Vice-President, and A. McShane, Secretary.

The Library Association proffered to surrender its library to this Society in December, 1889, providing the latter assumed all responsibilities, employed a librarian and admitted to membership its members. The first standing committee on Library was created at that meeting.

Dr. Blanc, the founder of the Library Association, is in reality the father of the library, but due honor should be given to Dr. Davidson, then President, and to his young Secretary, Dr. Chassaignac, for their vision in agitating its formation. The absorption of the library by the Orleans Parish Medical Society was heralded as an important event in the history of Medicine of this city, because it brought together in one organization all the local medical men who took an active interest in the welfare and progress of their profession. Dr. S. P. Delaup was the first librarian.

Dr. Parham in his presidential report for the year 1895 said: "The phenomenal increase will be understood when I tell you that in July, 1893, there were only 121 bound volumes in the library; by December, 1893, five volumes were purchased and 152 volumes were donated by Drs. Chassaignac and deRoaldes. In 1894, unfortunately, the Librarian made no report, but it appears that the library was in a sluggish state during that year. The moving into new quarters infused new life. Here are some of the items:

Purchases at U. S. Barracks, at 10	
cents per volume, bound	250
Donated by Dr. Bruns	216
Donated by Mrs. W. P. Schuppert.....	550
Donated by Dr. W. E. Brickell.....	39

and a number of smaller donations, making 1342 bound and 130 unbound volumes added during 1895."

The indexing of the library began in 1893. Dr. Delaup reported that when he assumed the duties of librarian in 1891, he found a catalogue without a single entry, a lot of medical journals and other pamphlets thrown promiscuously on the top of high shelves, a few weeklies and monthlies on the stand, and an infinite number of bound volumes in nearly every room of Tulane Hall.

In 1904, through Dr. Chassaignac, the New Orleans Polyclinic donated 1400 volumes to the library, and in 1921, Mrs. William Kohlman presented to the Society about one thousand volumes, the library of her distinguished husband.

In 1907, the members were permitted, for a limited period of time, to take the books to their homes.

From this humble beginning grew our present library. Its days of uncertainty are passed. Its growth will be rapid, its future assured. It has an endowment of \$10,000.00, and receives approximately 150 new books from the best publishers of this country and Europe without cost, because of a clause of the agreement of the gift of the New Orleans Medical and Surgical Journal to the State Society by the Committee on Arrangments of the 1920 Convention of the American Medical Association, that all books sent to the journal for review must be given to the library.

It contains today, approximately, 16,000 volumes, of which 14,365 are bound volumes. This library is the most treasured possession of the Society.

The Society soon outgrew its first domicile. Many of its presidents stressed the

necessity of the Society owning its own home. President Magruder, in his inaugural address, forcefully urged this need, hear what he said: "The one thing now of permanent importance to us is a domicile, and I say to you here tonight, look about you and see if this meeting room is a credit to the Medical Profession of New Orleans. No, it is not, and there is no reason why we should remain in such quarters. While we have not the wealth of some of our Northern neighbors, surely it cannot be said that among more than 200 physicians here, not enough money could be raised to purchase and maintain a proper domicile that would be a credit and an honor to us. We are stronger than ever before and action should not be longer deferred."

A dream of twenty years had at last been realized. November 12, 1904, the Society met for the first time in its own home.

The three-story building on Elks' Place, corner of Cleveland avenue, was purchased for \$5,000.00. A true house warming celebrated the occasion. Drs. Chaillé, Joseph Holt and Rudolph Matas were the orators on that occasion.

Again the Society soon outgrew its quarters. Dr. Granger in his presidential report for the year 1908, agitated the question of a larger domicile, with more sitting room, and with a larger shelving space for books, in short, one more comfortable to a society of this size and importance. And Dr. Seeman in his inaugural presidential address asserted that: "The present domicile of the Society is unfit in size, condition, and arrangement to house for a much longer period this Society, numbering as it does nearly 300 members, and some steps should be taken to better this condition."

On the same site a building was erected, and on March 13, 1911, the house warming meeting was held. Drs. Chaillé and Chas-saignac were the historians of that night, Dr. Ledbetter was the President, and to his

efforts is largely ascribable the erection of the new building.

Insufficient revenues added to a large mortgage, plunged the Society into financial distress, and it was soon confronted with the alternative either of selling its building or of having bankruptcy thrust upon it. Dr. Fossier suggested that the only way out of the difficulty was to give a benefit to the end that the much needed funds to save the credit of the organization could be more quickly procured. A committee headed by Dr. Fossier, with Drs. Homer Dupuy and Paul Gelpi, assisted by every member of the Society, gave a concert for the "Benefit of the Orleans Parish Medical Society Library Fund" at the Athenæum, January 27, 1917. Over \$5000.00 was realized from the program and the entertainment, and after paying pressing debts, the bonded indebtedness was reduced by \$3300.00. There were still outstanding bonds to the value of \$16,500.00.

Shortly afterwards, during the administration of Dr. Bernadas, and greatly through his efforts, the site was sold to the Elks' Club for \$50,000.00.

Time does not permit me to relate some of the most important episodes in the history of the Society; but mention must be made of these periods of dire calamity, when uncertainty, despair and fear hung as a pall over a proud city. Who more than the members of this Society realized the seriousness of the situation and the futility of human efforts to repel the unknown and invisible attacks of the insidious enemy? Yet grave dangers lurked and menaced the very existence of their patients, friends and loved ones, the destruction of the commerce of their city was imminent, and communication with the outside world was barred by the yellow flag and the unrelenting watch of the sentinel. With despair they would assemble to offer suggestions and to discuss ways and means by which the plagues could be eradicated.

A volume could be written on these symposiums, which are exemplifications of the stupendous progress of preventive medicine in the recent pass. In these fifty years of our existence, the era of the greatest medical advancement in the annals of mankind, the Orleans Parish Medical Society has always kept pace with the march of progress.

This Society is the repertory of the tradition, lore, culture and learning of a noble profession. It is still in its early infancy, but its future is assured, because of the stability of its foundation, built, as it is, on the rock of experience, adversity and service to suffering humanity. Its permanency may be assailed at just one point. Bearing on this subject, and warning of its dangers, our well-beloved John Archinard, President for the year 1907, said:

"In my inaugural address, I inveighed against cliques, or combines that jeopardize the integrity and welfare of our society, in order to promote selfish ends, further private interest, satisfy bounding ambition, or wreak vengeance for being outstripped in honorable competition for control of the affairs of the organization, and I deem it proper at the closure of tenure of office to again raise my voice, in no uncertain tones, against the menace. Believe me, gentlemen, I can truthfully say of our Society, equipped as it is, as Macauley did of America: 'If she be destroyed, it will not be by any power without, it will be by the Huns within.'"

Medical-Electrical-Pharmaceutical Exposition in Mexico City.—Mr. Ignacio Ocampo y A. publisher of the Journal of the Mexican Medical Association and the Bulletin of the Mexican Society of Radiology, and Mr. Frederick E. Storm, collaborator of the Mexican Medical Directory and representative in Mexico of the American Medical Association, are organizing a Medical-Electrical-Pharmaceutical Exposition and Convention, which will take place October next in Mexico City. The Exposition will be held under the auspices of the President of the Republic, General Flutarco Elias Calles; the Secretary of Education, the Mexican Medical Association, the Society of Electro-Radiology, the National University, The Health Department, etc., and great efforts are being made by the organizers to make this an attractive and popular event, not only to the medical and pharmaceutical profession, but also to the public in general.

PERSONAL RECOLLECTIONS.

G. FARRAR PATTON, M. D.,

NEW ORLEANS.

"My very noble and approved good masters." To paraphrase further the apology of Othello before the Senate of Venice: That our honored, learned and eloquent brother, Dr. Matas, is absent, is alas, most true. True, also, that by the gracious invitation of our Committee, I am here to speak in his place, however unworthy of that high honor. Under the circumstances, it would be vain on my part to attempt the role of actually representing Dr. Matas, but as it is understood to be his wish that I should review conditions existing at the time the old Medical and Surgical Association was merged into this Society, I shall endeavor, briefly, to set the facts of the case before you.

At the time that this Society was organized, as described by Dr. Fossier, the New Orleans Medical and Surgical Association was a vigorous and earnest body of men, and so far as concerns this present generation, was the pioneer organization of medical men in this city. It was but a small body of men, probably less than one hundred, but a body more enthusiastically devoted to the objects of their association I have never known. There was a meeting every Saturday night and there was always something doing.

A few years after this Society was formed, it began to be realized that there was seemingly no need for two distinct medical organizations in New Orleans, both carried on by practically the same men, and with the growth of that sentiment negotiations were set on foot to bring about a merging of the two into one strong and representative Society. A suitable letter was circulated asking for an expression of individual opinion on the subject, and as there appeared to be a strong sentiment favoring such a merger, a joint meeting was called to consider the question. Among other reasons for such action was the de-

sire, strongly advocated by Dr. Chaillé, to have the profession in New Orleans organized on strictly ethical lines, the Parish Society to be a unit in the State Medical Association, and our State to become thereby definitely affiliated with the growing American Medical Association. It is to be noted here that the old Medical and Surgical Association, however admirable and devoted, pointedly disavowed any obligation to the accepted Code of Ethics, though I do not remember any non-ethical man being admitted to membership.

Altogether, it is not surprising that in the old Association there was a small group of men, a sort of "Old Guard," who were bitterly opposed to the proposed coalition, which meant the death of their beloved Society. Among those was a certain prominent physician who had seemingly ignored the circular letter and who came to the joint meeting with war in his eyes, where, after being called to order four or five times because he persisted in talking, he finally rose and shook the dust off his feet, declaring he would never darken the doors again.

Despite all opposition, spoken or unspoken, the merger was duly carried through, with the results that we are here tonight to celebrate the Golden Jubilee of our own beloved Society, with its more than five hundred members and every prospect of a glorious future.

But if you will pardon a slight digression in memory of the old Association, I shall briefly tell you of one of its charming customs. There used to be an annual dinner, somewhere in mid-winter, to which the members were privileged to bring a guest, or more than one if willing to pay for them. We all sat at a long table, and the invited guests were expected to contribute to the general entertainment. There was a toastmaster who had kindly told those to be called upon the nature of the sentiment to which each would be asked to respond. This gave a certain zest of expectation to the atmosphere.

On one such occasion we had with us the jovial Rabbi Leucht, who possessed, as those of you who knew him will remember, a keen sense of humor. When he rose to respond to the call of the toast-master, he looked all around the room and then solemnly said: "Mr. Chairman, I certainly feel lonesome at this festive board. I find that I am the only preacher here. My friend, Dr. Loeber, who invited me, has as you know, a large Jewish practice, and I quite expected that for like reasons every other doctor would bring his pet preacher, but I look in vain for another in this room, so that I find myself stranded—marooned on an island of doctors."

But the most memorable instance of that kind was the presence on another occasion of a Colonel Glenn, a Texas Confederate colonel, who, in some unexplained way, had secured the appointment of Superintendent of Construction in the Custom House. Dr. Wm. H. Watkins, Chairman at the banquet, had invited the colonel, and when he rose to speak respectful silence was accorded him. He began by calling the waiter, whom he told, pointing to two caraffes of water, "Waiter, remove that objectionable liquid." As that order was being obeyed, he began to place in a semi-circle before him all the partly emptied wine glasses in reach. Still dead silence. At length, he drew from his pocket his card of invitation and addressing the Chairman, said: "Mr. Chairman and Gentlemen: Now that I have rid myself of the sight of that objectionable liquid, for which I have never had any use as drinking material, and have in front of me a cordon of that other liquid upon which I have learned to rely, I feel emboldened to address this meeting. When I received this card of invitation from my friend Watkins, I was greatly pleased, because I felt sure that you doctors, however much you give nasty doses to other people, know how to provide good food and drink for yourselves. But when I discovered, here in the lower left hand corner of the card certain mysterious, cabalistic letters, R.S.V.P.,

I was troubled with doubt as to whether they might not imply some condition with which I could not comply. In this dilemma I went to good old Aleck Finlay, who knows all the doctors and their ways, and asked him to tell me, if he could, just what those letters meant. Well, he laughed at me and said, 'Why don't you understand? R. S. V. P., coming after Watkins' name means *Royal Stag of the Victualizing Party.*'

"Gentlemen, let me tell you further, that all my life, up to tonight, I have stood in fear and dread of your profession. In earliest childhood the mention of a doctor always inspired nameless fear, while the sight of one was almost enough to throw me into a fit, but now that I have met you, individually and collectively under the benign influence of a state of partial intoxication, I know you for men and brothers, and I am not afraid of you any more." Needless to say, Col. Glenn was solid for many future invitations.

The Orleans Parish Medical Society did not immediately take up the pleasant custom of having an annual dinner, but we have always had an annual orator, preferably some distinguished man from outside our ranks, a selection that occasionally gave cause for serious debate. One year, when the time came to nominate an orator, Dr. Austin, a venerable member, proposed the name of a fine pulpit orator who was then rector of Trinity Episcopal Church, whose reputation the doctor declared was known from Maine to Florida. But Dr. Chaillé raised the objection that it would be but a poor compliment to invite such a man to come and address a small gathering, such as our annual meeting. To this Dr. Austin replied that we could engage a suitable hall and insure an audience by extending a general invitation to our friends.

Dr. Chaillé still objected, reminding us that on a previous occasion he had secured as an orator the greatest lawyer and the best orator in the State, Hon. Thos. J. Semmes, and that at the meeting, held in

the Grunewald Hall, less than seventy-five people had been present.

Dr. Austin then withdrew his nomination and on the suggestion that an orator be chosen from our membership, the name of Dr. T. S. Dabney, a bright and capable man, was put in nomination. But here Dr. Dabney rose to object, declaring that, although his reputation as an orator had probably not reached as far as Kenner, his sense of self-respect would hardly permit him to accept that nomination after all that had been said on the subject. However, he was prevailed upon to accept, but never delivered the address because he was later appointed a member of the Board of Examiners of the U. S. Pension Board and moved to Washington, so that it fell to my lot to speak in his place, just as I am doing here tonight.

Really, if it were not for the moral and spiritual uplift of which I am conscious in responding to the flattering invitation of the Committee, I might be tempted to feel that my presence on this platform, instead of in the back row of seats, may be in accordance with the prevailing idea that in an emergency, any old doctor will do.

In the course of that address, I expressed the wish and the hope as to an ideal future for this Society that it might by its influence become "a column of cloud by day and a pillar of fire by night" to guide our people struggling to escape from the wilderness of disease, while awaiting the coming of the Moses and the Aaron who were destined to lead us out of captivity; to rescue us and our children from the bondage of pestilence, with its heritage of untimely death. That hope has not been in vain. Those men have come, and one by one we have been able to vanquish certain deadly diseases which so long held the human race in helpless subjection.

I have not many years to live, so that I may not hope to witness the future triumphs of medical science, but I shall be content to "depart in peace, now that mine eyes have beheld the glory of the Lord" as

revealed in medical progress. Am I conscious of anything like stage-fright in thus addressing such an audience? Certainly not! In speaking to you this evening I simply feel that I am talking to a group of younger brothers and sisters, and when I look into your earnest, friendly faces, my heart goes out to you in fraternal affection, mingled with a glow of pride that I, too, am a soldier in your ranks, if perchance, only a corporal.

Speaking for myself, I will say that when this Society shall again acquire its own domicile, if still living, I should like to see, displayed upon its walls in letters of gold the Psalmist's words: *Ecce quam bonum, quamque jucundum, habitare fratres in unum.*† "Behold how good and pleasant it is for brothers to dwell together in unity." Surely a fitting motto for this Society, and one that all should seriously take to heart. To men and women like those gathered here tonight there can be no more inspiring thought than the realization of what is meant by those words of wisdom that have come down to us unchanged through the passing of centuries, assuring those thus pledged to our sacred calling that for our own sakes and for the success of our work, it is "Good and pleasant for brothers to dwell together in unity."

†133 Psalm.

World Child-Labor Standards.—Eighteen countries have ratified the draft convention adopted by the International Labor Office and submitted to the member nations of the League of Nations, which places the minimum age for entrance into industry at 14 years, and 20 countries have ratified that prohibiting night work of minors under 13 in industry, with certain exceptions for those over 16.

THE RELATION OF THE PHYSICIAN TO THE PUBLIC.

T. SEMMES WALMSLEY,

NEW ORLEANS.

It is indeed a pleasure to be asked to come to this meeting, because since 1920 it has been my privilege to become acquainted with a great number of medical men of the State, and particularly of the City of New Orleans. I feel that I have become part and parcel of the medical profession during that time. But it is indeed a greater pleasure to come on such a joyous occasion and to see the improvement that has been made by this Society which now has over five hundred members. You have a right to be proud of it.

There is one thing that struck me most forcibly in listening to the addresses tonight, and that was that this Society has recognized the obligation that it owes to the public. It is a great thing for a doctor to be able to say that he is able to cure the sick, to be able to alleviate pain and suffering. But is that all that that doctor owes to the community? Has he filled his entire obligation when he has cured the sick upon whom he has to call? According to my views and concepts of a doctor's obligation, and according to my views of the obligation of the State and Parish Medical Society, they have a greater obligation to perform. The State, the public at large have placed in their hands the administration of the Medical Practice Act. The State, the public at large, have entrusted to them, not only the administration of that Act, but it looks to the medical profession to protect the public from imposters, from quacks, from people of all kinds who would prey upon the credulity of the public in an effort to obtain from them a certain amount of cash. How can the public know those things that are legitimate cures? How can the public believe those things that we read in the Press as miraculous cures, wonderful operations performed? We must rely entirely upon the advice and the assistance of physicians

and surgeons to tell the truth to the public and to keep them fully informed of developments—not only is that your obligation, but it is likewise your obligation to see that those men who are designated by your Society to carry out the purposes of the Medical Practice Act are kept fully informed of things that come to your notice. It might well be that you would feel that a doctor who might have given too much morphin, or who might prescribe too much cocaine should not be reported to them, but it is my idea of your duty as doctors when occasions of that kind come to your notice to report it to the State Board of Medical Examiners to take proper action. It might not conform with your ideas of ethics. It might be that you would believe it to be your duty not to divulge those things that come to your attention what another doctor has done, but you owe a greater obligation to the community, State and nation to at least have that instance investigated by the proper parties, who have been designated by your association and appointed by the Governor to make those investigations. You must remember that the public has placed a halo about you, that they have given you untold protection, that they are permitting you experiments upon the lives of the people of the State, and they in turn have the right to demand of you that same protection from the quacks and those people who should not be administering to the public. You might well say: What is the practice of medicine? All seem to understand it, but the Legislature has defined what is the practice of medicine and they have gone much further than what the average man can imagine.

So you see there is practically nothing that you can do, even the mere laying of your hands on a person to try and straighten out the end of your little finger, which is not practically the practice of medicine. Since you have had this entire—well you might say laying of your hands upon the public of the State—made sacred unto you, there is the obligation to

safeguard the public at large from all persons who try to do things that do not come within the terms of this Act.

One of the most striking things that I have heard in my life came to my notice today, and the remedy to my mind will have to come from the physicians. We were discussing the question of the new Jail and Parish Prison in the Council Chamber and Dr. Hart was asked the question if prohibition did not provide more violators for the Federal prisons than any other class of people. He said it is remarkable to know that this is not the case, but that sixty per cent of the inmates of the Federal penitentiary today are there for violation of the Harrison Narcotic Act. Sixty per cent are, therefore, drug addicts or those selling or dealing in drugs. It was startling to know. It was astounding to every member of the Council. At the time I heard it I made mental reservation to mention it tonight. The lawmakers cannot find a solution apparently for this problem; that will have to come from the medical men. You will have to make the decision as to what the remedy shall be. The lawmakers are willing to recognize that they have failed so far in dealing with this problem, but it is up to you to devote your time and study to lifting this dreadful curse from this nation. To my mind, unless this curse is taken away from this country, it will not be long before its ravages will be felt in every home. It is hard to really realize the purport of a statement of that sort, but when you begin to realize how great the spread has been in this country in the last years and when you begin to realize that sixty per cent of the Federal prisoners are there for that reason, you must realize there is no greater problem confronting the medical profession than working out the solution of this problem for the public.

The public does not expect the medical profession to run around seeking various people who are violating this Act, but it does expect that when these things come to

your attention that you will do your part. I want to say that the medical profession as a whole has not since 1920 taken interest. It is an obligation that is rightfully theirs. You have had a small coterie of men bearing the brunt of your work. I say that advisedly. I have attended every session of the Legislature since 1920 and I have seen practically the same men every year defending attacks made upon your Medical Practice Act. I have heard men say that merely by manipulation of the spine they could cure diphtheria, scarlet fever, syphilis, and cancer. Merely by the manipulation of the spine they could be done away with. It is ridiculous to think that these things can be done, but it would not be so ridiculous if you would stand up there and hear these people, just as earnest apparently, just as sincere as we are in this room at this time, believing these very doctrines. It would not make very much difference if someone got on the corner of Canal and Royal and preached doctrines of that kind, but when you see your legislators believing these things and advocating these practices then I say that you have the obligation upon everyone of you to not leave that battle to a handful of men to carry on; and that is what has been done. You cannot expect the State Board of Medical Examiners to take any part as the State Board of Medical Examiners in that fight. They are placed there by the law to administer the law. The duty of defending that law rests upon the medical practitioners and rests upon the Medical Society to see that only trained men, capable of understanding the ravages of diseases now prevalent, are permitted to deal with the public. And you leave that fight up to a Committee of one or two. It is not fair to the mere handful who go up there time and time again. That obligation is yours. I remember well in 1922 when I was in the Attorney General's office, that there were only four men who paid any attention to the attacks being made. There, later, got to be as many as twelve. But now I want to tell you that unless all of you make a determined effort to stamp

out once and for all the attacks that are being made, that you can expect quackery, fakery of every kind. even the practice of attempting to relieve under the cover of religion—I am not talking of any real religion, as I pay only respect to some of them, but I say under cover of religion, for there are people who are ready to rush to Louisiana believing it a Mecca. I believe the time has come when you must maintain your position now or you will not be able to resist in future years onslaughts from other States

As a parting word, I wish to impress upon you, the Society can begin in a no more useful way, nor in a better way than by advocating a minimum requirement for medical practice throughout the United States, by having Congress adopt a law requiring a minimum for physicians throughout the entire United States. The requirements in some of the other States are lower than in this State. Unless you do this, you will rue it and the public will pay the price for having reposed this confidence in you.

A STUDY OF TUBERCULOUS ADENITIS CONFINED TO THE INGUINAL LYMPH GLANDS.

EDWARD McCORMAC, M. D.†
NEW ORLEANS.

Tuberculosis not infrequently attacks the lymphatic system. The greater percentage of occurrences are seen, however, in the cervical glands. While it is not rare to see an involvement of the inguinal lymph glands, it is the opinion of the writer that the number of such cases is over-estimated. This source of error is to be found in the fact that a routine microscopic section is not done on all glands removed. In searching for literature upon this subject, directly, I was unsuccessful; not a single publication was obtainable. Text-books of pathology make mention of the condition being rare and say no more.

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There have been some unusual and interesting malignant conditions of the inguinal glands reported. The prevalence of adenitis as a secondary infection resulting from penile sores and uncleanness is thoroughly understood. The type of case most interesting and presenting the hardest problem for diagnosis, is that in which the glands enlarge slowly, are sometimes slightly suggestive of fluctuation but fail to resolve and present varying degrees of pain.

The cases herein reported are all taken from the wards in the Charity Hospital. A series of 2189 case histories of surgical tuberculosis have been reviewed. This includes all types of tuberculosis requiring drainage or removal of the involved parts. A fair number of cases, probably forty or fifty, were diagnosed clinically as tuberculosis. These were not included since confirmation of the diagnosis was lacking. Fifty-two cases in which the microscopical report was tuberculosis have been included in the following table. All of these were clean-cut cases with the process involving the inguinal glands. Of these fifty-two, thirty-one were primary in the inguinal glands. Eight cases showed a tuberculous involvement elsewhere, six being in the lung, one being a general adenopathy plus a pulmonary tuberculosis, and one an involvement of the epitrochlear glands. In twelve cases the records failed to mention whether there was any involvement elsewhere or not.

In forty-one cases the condition was unilateral, four bilateral, in six cases unrecorded, and in one no operative procedure was carried out. In the case not operated on, the patient had pulmonary tuberculosis with a general adenopathy and a clinical diagnosis was made of tuberculous inguinal adenitis. In two of this series adenitis developed following trauma.

In twenty of the original fifty-two, the correct diagnosis was made. The remain-

ing thirty-two were diagnosed variously, as suppurative adenitis, inflammatory adenitis, and one case was called malignancy.

In the original series of fifty-two cases, twenty-three were white, eighteen colored, and eleven unrecorded.

There were forty-one males, four females, and in seven the history failed to record the sex.

Twelve were not painful, twenty were painful, ten were slightly painful, and in the remaining ten this symptom was not recorded.

Convalescence in all cases was uneventful. The time in the hospital varied from one to six weeks. In only one case was there a recurrence, and this was after a period of ten months.

The percentage of adenitis being caused from venereal disease, of course, greatly out-numbers that of any other source. This is borne out by the fact that from the years 1906 to 1912, 1312 cases of bubo of venereal origin were operated in the Charity Hospital. The proportion between white and black was very small, 740 being black and 572 being white.

CONCLUSIONS.

1. The number of cases of primary tuberculous inguinal adenitis is distinctly over-estimated.

2. In the so-called cases of idiopathic inguinal adenitis, the possibility of primary tuberculosis should always be considered.

3. In cases of adenitis where the glands fail to suppurate or resolve, it is not unwise to consider an early adenectomy because in a certain percentage of cases we are here dealing with an incipient tuberculous condition.

4. After the removal of the tuberculous glands the convalescence can be greatly aided by the application of radium following a complete adenectomy.

HISTORY NUMBER	PRE-OPERATIVE DIAGNOSIS	TB ELSE-WHERE	CONVA-LESCENCE RECURRENCE	POST-OP. DIAG. MICROSCOP.	PAIN	AGE	SEX	SIDE	COLOR
837			Uneventful 16 days	TB adenitis	Slight	16	Male	Unilateral	Colored
686		No	Operated 7/4-8/2 Disch. 8/29	TB adenitis		20	Male	Unilateral	Colored
574			Uneventful one month	TB adenitis	Present	27	Male	Unilateral	White
548			Uneventful five weeks	TB adenitis	None	38	Male	Unilateral	White
250			Uneventful three weeks	TB adenitis	Present	19	Male	Unilateral	White
260			Uneventful 25 days	TB adenitis	Present	68	Male	Unilateral	Colored
261		No	Recovered Op. 10 mos. previous	TB adenitis		23	Male	Unilateral	White
262			Uneventful one month	TB adenitis	Slight	27	Male	Unilateral	White
286			Uneventful six weeks	TB adenitis	Present	17	Male	Unilateral	White
303	Inguinal adenitis.....	No	Uneventful three weeks	TB adenitis	Present	26	Male	Unilateral	White
322		Pulmonary	Uneventful three weeks	TB adenitis	Present	24	Male	Unilateral	Colored
1102	Inguinal adenitis.....			TB adenitis	Present	24	Male	Unilateral	White
1116	Inguinal adenitis.....		Uneventful six weeks	TB adenitis		28	Male	Bilateral	White
1117	TB ing. adenitis..... (Sup.)		Uneventful three weeks	TB adenitis		23	Female	Unilateral	Colored
1120	Inguinal adenitis.....	No	Uneventful 25 days	TB adenitis	No	30	Male	Blow in groin shortly before Unilateral	White
1151	TB adenitis.....	No	Uneventful seven weeks	TB adenitis	No	38	Male	Unilateral	Colored
1154	Sup. Inguinal adenitis		Uneventful 16 days	TB adenitis		22	Male	Bilateral	Colored
1164	Sup. Inguinal adenitis	No	Uneventful two weeks	Glands TB adenitis	incised 4 Slight	mo 36	nths befo Male	re following Unilateral	soft sore White
1169	Sup. Inguinal adenitis	No	Uneventful three weeks	TB adenitis	Present	48	Male	Unilateral	White
1013	Sup. TB adenitis.....	Pulmonary	Uneventful 17 days	TB adenitis		28	Male	Unilateral	Colored
1038	TB adenitis.....		Uneventful 24 days	TB adenitis	Slight	18	Male	Unilateral	White
1047	Malignant adenitis....	No	Uneventful six weeks	TB adenitis	Present	29	Male	Unilateral	White

HISTORY NUMBER	PRE-OPERATIVE DIAGNOSIS	TB ELSE- WHERE	CONVA- LESCENCE RECURRENCE	POST-OP. DIAG. MICROSCOP.	PAIN	AGE	SEX	SIDE	COLOR
946	Simple adenitis.....	No	Uneventful eight days	TB adenitis	Present	24	Male	Unilateral	White
963	Sup. inguinal adenitis	No	Uneventful one month	TB adenitis	.....	24	Male	Unilateral	Colored
B6556 (1307)	Inguinal adenitis.....	No	Uneventful 16 days	TB adenitis	No	33	Male	Unilateral	Colored
C1610 (1320)	Inguinal adenitis.....	No	Uneventful two weeks	TB adenitis	Present	.....	.....	.....	.....
C2483 (1323)	TB. inguinal adenitis	.....	Uneventful two weeks	TB adenitis	.....	17	Male	Unilateral	Colored
C2760 (1324)	Bilat. ing. adenitis....	No	Uneventful nine days	TB adenitis	.....	32	Male	Unilateral	Colored
C2526 (1328)	TB inguinal adenitis	No	Uneventful two weeks	TB adenitis	Present	47	Male	Unilateral	White
1337	Inguinal adenitis.....	No	Uneventful 10 days	TB adenitis	Present	27	Male	Unilateral	White
1360	Inguinal adenitis.....	No	Uneventful two weeks	TB adenitis	None	19	Male	Unilateral	Colored
1380	TB inguinal adenitis	No	Uneventful 18 days	TB adenitis	Present	28	Male	Uni. op. for hernia and gland removed TB	White
1196	Inguinal adenitis..... (Sup)	No	Uneventful one month	TB adenitis	Present	20	Male	Unilateral	.....
1211	Inguinal adenitis.....	Pulmonary ?	Uneventful 19 days	TB adenitis	None	30	Male	Unilateral	.....
1213	Inguinal adenitis.....	No	Uneventful 4 weeks	TB adenitis	Slight	25	Male	Unilateral	.....
1229	Inguinal adenitis.....	No	Uneventful 11 days	TB adenitis	Present	40	Female	Unilateral	.....
1244	Inguinal adenitis.....	No	Uneventful 20 days	TB adenitis	None	36	Male	Unilateral	White
1257	Inguinal adenitis..... (Sup)	No	Uneventful 9 days	TB adenitis	.....	26	Male	Unilateral	White
B09950	Sup. inguinal adenitis	No	Uneventful one week	TB adenitis	Slight	.....	.....	.....	.....
C03867	Sup. inguinal adenitis	No	Uneventful three weeks	Operated for TB adenitis	right ing. he Present	g. hernia 6 mo s. previous	.....	.....	.....
B03821	TB adenitis.....	Pulmonary and gen. adenitis	Discharged	TB adenitis	None	.....	.....	No operation	.....
A161 (1846)	TB.....	No	Uneventful 22 days	TB adenitis	None	47	Male	Uni. following injury to toe 6 weeks previous	Colored
1553	TB inguinal adenitis	Epitroch. TB adenitis	Uneventful six weeks	TB adenitis	None	42	Female	Bilat. and right elbow	Colored

HISTORY NUMBER	PRE-OPERATIVE DIAGNOSIS	TB ELSE- WHERE	CONVA- LESCENCE RECURRENCE	POST-OP. DIAG. MICROSCOP.	PAIN	AGE	SEX	SIDE	COLOR
1561	Inguinal adenitis.....	Pulmonary	Uneventful two weeks	TB adenitis	.....	20	Male	Unilateral	White
1407	Chancroid adenitis.....	No	Uneventful one week	TB adenitis	Present	20	Male	Unilateral	Colored
1567	TB inguinal adenitis	No	Uneventful three weeks	TB adenitis	Slight	.....	.....	.....	.....
1412	Inflam. ing. adenitis	Pulmonary ?	Uneventful 12 days	TB adenitis	Tender	.....	.....	.....	.....
1423	TB inguinal adenitis	Pulmonary ?	Uneventful 8 days	TB adenitis	.....	21	Male	Bilateral	White
E2057 (1460)	Inguinal adenitis.....	No	Uneventful two weeks	TB adenitis	.....	.....	.....	.....	.....
B4840 (1297)	Sup. ing. adenitis.....	No	Uneventful four weeks	TB adenitis	Present	30	Male	Unilateral	Colored
1300	Inguinal adenitis.....	No	Uneventful three weeks	TB adenitis	Present	35	Male	Unilateral	White
1305	Sup. ing. adenitis.....	No	Uneventful two weeks	TB adenitis	Present	49	Female	Unilateral	Colored

CONSTITUTIONAL PSYCHOPATHIC INFERIORITY.*

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"Constitutional inferiority" was introduced into American psychiatric terminology by Adolf Meyer in 1904. In 1913 M. J. Karpas described "psychic constitutional inferiority" as the foundation of most, if not all, of the psychoses. Three years later he used the term "constitutional inferiority" and his earlier views were subjected to alteration.

The terms constitutional psychopathic inferiority, constitutional inferiority, constitutional psychopath, constitutional psychopathic state, and psychopathic personality are usually used synonymously. An attempt to differentiate between constitutional psychopathic state and constitutional inferiority was made by Visser, who be-

lieves that in the former there is usually no history of marked industrial inefficiency or anti-social conduct, and what gross maladaptation is present does not extend back to early life. Whether or not this differentiation is quite valid is questionable.

Human behavior can only be effectively studied from the viewpoint that it is fundamentally a problem of mind and character in relation to environment. Disordered behavior, then, must be chiefly a matter of disordered mind.

In constitutional psychopathic inferiority we are dealing with a disorder of the constitution of the personality. It is not a matter of disease engrafted in a previously healthy individual, but rather with the gradual malformation of a character into an abnormal balancing of feelings in relation to behavior.

The difficulties are to be found in malformations of character, caused by an unusual influence of emotional factors that have in some way failed to find adequate control through inhibitions, or to respond to counter-balances that we consider as es-

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sential for normal life. The effects of these are to produce a class of individuals, who are not insane in a sense, but yet are not normal. Individuals of this class find it difficult to adjust themselves to family life and social relationships. These lead them to conflicts with laws, and they become social failures that must be given special consideration. While the group of constitutional psychopathic inferiorities has characteristic features that are common to all, some observers believe that there are certain manifestations, which stand out with such prominence, as to give them special significance. In some the abnormal qualities show as emotional instability with a tendency to outbursts of excitement, and disordered behavior that occurs under even trivial annoyances. In others the individual is weak in will and unable to adhere to any sustained plans, and is easily led into acts that bring him into social difficulties. In still another type the abnormalities lie in an instability of character, and a marked prominence of the imagination, which leads to a pathologic type of lying and acts of deceit.

Kraepelin classifies constitutional psychopathic inferiority under seven headings: (a) the excitable; (b) the inadequate; (c) the impulsive; (d) the eccentric; (e) the pathologic liars and swindlers; (f) the anti-social; (g) the quarrelsome.

His description of these types shows that certain principal features are repeated sufficiently frequently to allow classification into types, but it is to be remembered that psychopathy is a uniform conception, only in that it embraces psychic deviations from the normal that are not limited in any other way, and it is best not to say that psychopaths have this or that quality, for according to the nature of the condition they can not have any definite limitations and there are no symptoms which are common to all. Every individual is a rule unto himself. The manifestations show an infinite shading of variety, transition and combination. In most cases the affective peculiarities are

in the foreground. If there is average or great intelligence, it has little regulating influence on the individual's actions.

In the following table, J. H. Huddleson gives an interesting and valuable classification, with the incidence rates of twenty-one important characteristics, of constitutional psychopathic inferiority (see table).

In a number of instances I have used this table in checking up manifestations in cases of constitutional psychopathic inferiority, and have been pleased with the results obtained. Ordinarily, the constitutional psychopath is easily differentiated from the normal, but to group all individuals of psychopathic constitution in specific types is neither easy nor satisfactory. Psychopathic traits occur in such intermixtures in varying prominence of this or that abnormality that the feasibility of too rigid and extensive classifying becomes doubtful. While it is convenient for those dealing with problems of behavior in social relations it presents clinical and psychologic difficulties. The psychopathic personality is a serious disturbing influence in the home and community, and his frequent conflicts with the law show his incapacity to adjust himself adequately to the regulations under which we all must live, making it necessary that his constitutional weakness be appreciated by those who administer laws or deal with problems of behavior.

To what degree of intensity one wishes to designate the psychopath as sick, is arbitrary. From what degree one no longer wishes to consider him as a psychopath, but as insane, is discretionary.

Bleuler says "many psychopaths are only in the social sense "not insane"; before the forum of natural science, they suffer from the same anomalies as many insane only in a slighter degree; they are paranoid, schizoid, latent epileptics, cyclothymic, etc."

As the many anomalies of character are normal or usual to the individual they can not properly be said to constitute a psychosis, but as they lead to inefficient types of

Classes of Characteristics	Characteristics	INCIDENCE	
		in	in
		Number of Cases	Each 100 Cases
Physical manifestations:	a Anatomic stigmas	40.....	8
	*b Sexual anomalies	21.....	4
	c Enuresis (after age 5)	11.....	2
	d Onychophagia (nail biting)	12.....	2.5
	e Stuttering and stammering	46.....	9
Addictions:	f Drug addiction	8.....	1.5
	g Alcohol addiction	50.....	10
	h Tobacco addiction	11.....	2
Traits suggesting manic- depressive make-up:	i Emotional instability	318.....	63.5
Traits suggesting manic and paranoid tendencies:	j Grandiosity and excessive self-esteem	102.....	20.5
Traits suggesting paranoid trend:	*k Paranoid personality	90.....	18
Traits suggesting schizo- phrenic make-up:	*l Metatopomania (tendency to wander from place to place)	97.....	19.5
	m Polypraxia (tendency to go from place of employment or job to another)	240.....	48
	n Working beneath mental capacity	9.....	2
	*o Poor cooperation and refractoriness	179.....	36
Traits suggesting mental deficiency:	*p Unreliability (other than q and r)	157.....	31.5
	*q Conscious exaggeration of symptoms	207.....	41.5
	*r Malingering (charged as such)	28.....	5.5
	Malingering suspected	11.....	2
Conduct disorders:	*s Truancy and A W O L tendency	74.....	15
	*t Trouble making	95.....	19
	*u All conduct disorders	250.....	50

One finding of a given trait conditions a single entry, except for traits marked with the asterisk. The counting of a trait in one of these starred groups may be duplicated in another starred group; that is, such groups overlap.

Data in above table obtained in a study of five hundred cases.

adjustment of the individual to his environment, and as persons exhibiting these peculiarities often become actively disordered, they may be regarded as borderland conditions. The life of the individual is, to use the words of Régis, "one long contradiction between the apparent wealth of means and poverty of results."

It is my belief that, from a practical viewpoint, insanity means social incapacity.

In the treatment of the psychopathic individual, it is important to recognize tendencies and abnormalities as early as possible in the life of the individual, and this is often possible in the earlier years of life

or even in infancy, as the "nervous" manifestations of childhood are common traits that stand in intimate relation to the development of a psychopathic character. The physician has special responsibility in this period; he should know how to distinguish abnormal qualities, and be able to instruct parents in methods of dealing intelligently with them.

Whatever is impairing the health of the individual should receive careful attention. Training of the psychopathic child should be directed toward securing simplicity of life, quiet surroundings, and self restraint. The environment should be such as to make

life as free as possible from all that produces unusual stimulation. Early interest in sex matters should be guarded against as these always have relations that bring to the individual excessive emotional stresses, and are powerful influences in shaping character.

In the adult, effort must be directed toward securing as good physical health as possible. Environment should be chosen with an appreciation of the limited and special capacities for adjustments that are characteristic of the psychopath. The individual must be taught to exercise self control, and to govern his life with an intelligent understanding of those influences that he cannot adequately handle. These principles are theoretical, and too often bring no improvement, and the individual continues a social menace. In these instances, it is best for the protection of society that the psychopath, who possesses criminal tendencies, be confined in institutions for the mentally abnormal, reformatories or prisons. Judges should appreciate the limited capacities that the psychopathic criminal has for controlling his behavior and that psychopaths form a large proportion of repeated offenders. Determination of penalties should be largely determined by the mental constitution of the offender, which is often such as to make long periods of confinement advisable.

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THE ASSOCIATION OF QUINIDIN SULPHATE AND DIGITALIS IN AURICULAR FIBRILLATION.

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The introduction of quinidin in the treatment of cardiac disease marks a comparatively recent innovation in therapeutics, rivalling in its effects the many spectacular occurrences of modern medicine, holding attention, commanding inquiry, and unfortunately spurring on to reckless exaggeration many who, eager to go farther forwards, are lured into the pitfalls of dangerous experiment.

The history of quinidin and of quinin, its sister alkaloid, is not lacking in interest, very much like that of their physiologic antithesis, digitalis; all at one time were the property of empiricism. It is common knowledge that digitalis, previous to the careful attention given to it by Withering in 1874, was the principal ingredient of a mixture used by an old woman healer who was said to have restored to health a number of cases of dropsy. On the other hand it seems that quinin, for a great many years past, has been employed in the treatment of heart disease. A number of physicians of the old school favored the combination of the two drugs: Weckenbach⁽¹⁸⁾ recalls that Ludwig Traub habitually combined them so as to avoid the disagreeable effects of digitalis on the stomach. Opalzer reckoned quinin, rest and digitalis as our three most powerful therapeutic resources in diseases of the heart; Stokvis points to the fact that quinin, owing to its damping of an excessive digitalis action, may in many respects be called an antagonist to digitalis; Pil always gave digitalis and quinin together because he found that the mixture had a better effect on his patients than digitalis alone. Huchard favored quinin in the treatment of paroxys-

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mal tachycardia and other arrhythmias, either alone or associated with digitalis.

It is surprising that during a period when so little was known regarding the pharmacology of quinin and digitalis, and when the chief guiding spirit in the choice of drugs was sound and accurate observation, in a large measure, unaided by extensive experimental work, so much of the value and interdependence of the two drugs should have been recognized: digitalis, as we now know by its action on the vagus, stimulating cardiac inhibition, and quinin depressing it. Cheinisse⁽¹⁾ quotes the experiments of Stokvis on the isolated heart of the frog: in 1905, that investigator demonstrated that digitalis increases the number and intensity of the pulsations, lengthening systole and exciting the heart, whereas quinin diminishes both the number and force of the contractions and shortens systole. He affirmed that quinin favored the action of digitalis and that the combination of both drugs yielded therapeutic results which were far more satisfactory than those obtained by the use of digitalis alone. Others using a combination of both drugs found that the depressing action of quinin was prevented and that the exciting effect of digitalis was tempered; the results were an improvement in the cardiac activity.

Pezzi and Clerc⁽¹⁴⁾ in France, report that dogs thoroughly quininized and receiving massive doses of crystallized digitalein Nativelle failed to develop toxic symptoms. Experimenting on the isolated heart of the frog, Weichman, assistant of Von Romberg in Munich, has demonstrated this antagonism of the two drugs.⁽¹⁴⁾ The experiments consisted in allowing the heart to remain in a solution of quinin until it ceased to beat, the paralysed organ was then immersed in a solution of digitalein which had the effect of restoring it to active contractions.

Similar antagonisms between digitalis and quinin are also observed on the myocardium and on the conducting tissues: On

the myocardium digitalis shortens the refractory period of the auricle, quinin lengthens it. Digitalis speeds the auricular rate, quinin slows it, whereas quite the opposite effect is noticed on the ventricle which is slowed by digitalis and speeded by quinin. The report of T. S. Hart⁽⁴⁾ demonstrates the clinical antagonism of the two drugs on the auricular and ventricular musculature by electro-cardiographic tracings of his patients. On the conducting tissues, the action of digitalis is stimulatng, that of quinin is depressing, as evidenced by the P. R. interval which is shortened by digitalis, and lengthened by quinin.

Evidence of the physiologic antagonism between digitalis and quinin, on the heart, both on the isolated myocardium and on the inhibition mechanism, is clearly demonstrated and the observations of old clinicians regarding the advantage of the reciprocal relations of the two drugs on each other receive sanction in the light of modern scientific analysis. It is on this principle that quininidin therapy is founded.

The effect of quinin in overcoming certain heart disturbances was accidentally revealed to Weckenbach,⁽¹⁷⁾ in 1912, by a patient, a man of fifty years of age, who was annoyed by frequent attacks of very troublesome palpitations lasting from two to fourteen days, and who sought medical advice in the hope of securing permanent relief. He boasted of being able to abolish the individual attacks very promptly and as that statement was questioned, he promised to call back the next day with a regular pulse. True to his promise, and much to the surprise of the doctor, on the following day the pronounced arrhythmia had completely disappeared; the patient had taken quinin, which, in localities where malaria was prevalent, enjoyed universal favor throughout the whole range of disease. He had found complete relief from his cardiac distress twenty to twenty-five minutes after taking the drug and after a little experimenting, had dis-

covered that one gram would invariably put an end to the attack. Weckenbach was so impressed that he determined to try quinidin in auricular fibrillation and in other conditions of hyperactivity of the heart, such as hyperthyroidism and exophthalmic goiter, in 0.5 to 0.8 gram doses. In the latter conditions the results were fairly gratifying, but in auricular fibrillation he had little or no success.

It was left to Von Frey, in experimenting with other alkaloids of cinchona, to discover the much more effective and remarkable effects of quinidin especially in auricular fibrillation, the first publication of which appeared in 1917. Since that time numerous reports have appeared in nearly all parts of the civilized world with alternate waves of condemnation and exultant approbation.

R. L. Levy⁽⁸⁾ gives an excellent sketch of the history of quinidin in which the following facts are recorded: Quinidin was isolated by Heihningen in 1849 from a by-product in the preparation of quinin called chinoidin. Later, Pasteur prepared it in purer form and gave it the name of chinidin. It has also been known subsequently by other chemists as conchinin, cinchotin and beta-chinidin, and used extensively in the treatment of malarial fevers. Wunderlich, in 1856, was the first to use it extensively in malaria, reporting one hundred cases in which he found it fully as serviceable as quinin, giving it preference over quinin in hospital practice because cheaper. The dose was the same as quinin, ranging from 10 to 25 grains. In 1878, Strumpell used it for its antipyretic action in fifty cases of infectious disease. He reports one death, a typhoid patient who by mistake swallowed 4 grams in solution. In 1880, Freidenberger reported two deaths in children with scarlatina, vomiting, collapse, convulsions and death following a few minutes after the last dose. In the same review appears the case of a boy seven and a half years old which is instructive in so far as it demonstrates the toxic effects of

quinidin in the presence of marked idiosyncrasy. He received 12 grams in five days; several times, vomiting followed the dose within one hour. On the fifth day edema and on the sixth day general anasarca appeared with diarrhea lasting two days, followed by profuse diuresis and disappearance of anasarca. Four days after discontinuing the drug it was given again for one day on account of rise in temperature with the reappearance of the anasarca, which, as it did on the previous occasion, disappeared promptly after withholding treatment. As Levy observes, even at that time when extensively employed as an antipyretic, undesirable effects were attributed to its use.

Since Von Frey's discovery of the effects of quinidin in auricular fibrillation, the association of digitalis to quinidin in the treatment of that form of arrhythmia has almost always been advocated. Differences, however, loom up when methods are considered concerning the relative advantages of simultaneous or alternate use of the two drugs. Preparatory digitalisation, especially when congestive heart failure appears in the case history, either present or not very remote, is without doubt the method of choice as advocated by Frey, and followed by the majority. In France, Cheinisse⁽²⁾ claims priority in introducing quinidin in the treatment of auricular fibrillation in that country, associating digitalis as a preliminary measure in the presence of heart failure. Clerc and Pezzi, Josue, Lian and Vasquez advocate the same method—Lecompte urges the combination of ouabain and digitalis. Deschamps, still more drastic, advocates digitalis before quinidin, even in the absence of cardiac failure. In the presence of heart failure he leans to ouabain which he combines with digitalis. He cites one case brilliantly relieved by preliminary digitalisation, reenforced by intravenous injection of ouabain. In Germany, Von Romberg, Von Kapt and others adopt the same principles. Others favor the alternate treatment but reverse the order—Von Bergman in Germany, Hewlett and

Sweeney,⁽⁵⁾ Hamburger and Priest⁽³⁾ in America, prefer quinidin at once without previous digitalisation, their objection to digitalis is that the relief from fibrillation is retarded on account of the increase in auricular rate caused by digitalis and that larger doses of quinidin are required. Hamburger and Priest seem to credit digitalis with failure to restore normal rhythm or to cause it to be of short duration. But, as observed by Lewis,⁽⁹⁾ who, although admitting this action of digitalis and even that the fall in the auricular rate is sometimes not quite so marked when the heart has been previously digitalised, and indeed may be delayed thereby, claims for it the advantage of reducing the ventricular rate which fibrillation keeps at dangerous levels; for this reason he advises the simultaneous use of both drugs, "digitalis controlling the ventricular rate throughout the quinidin reaction".

Preparatory digitalisation before quinidin is now almost universally regarded as essential, especially when dealing with advanced cardiac insufficiency, indeed even in the absence of well established organic disease it seems that the response to quinidin, if perhaps a little delayed, is more satisfactory when digitalis is used as a preparatory measure.

There can be no plausible objection to the combined or alternate use of digitalis and quinidin on the plea of antagonism of the two drugs to each other, any more than to the usual combination of morphia and atropin. The pharmacologic relations of the two combinations are in every way similar and in the light of reason as well as in that of actual observation, this antagonism, far from being harmful is a decided advantage. It would be just as illogical to abstain from atropin in combination with morphia because the former stimulates the respiratory center whereas the latter depresses it, as to object to the association of digitalis to quinidin because digitalis speeds the auricle and slows the ventricle, whereas quinidin does just the

contrary. Atropin counters the ill effects of morphin without interfering with its sedative action, just as digitalis protects the heart against the excessive ventricular rate caused by quinidin without any appreciable obstacle to the return of normal rhythm.

The protective influence of quinin against cardiac poisons and conditions inducing auricular fibrillation is well illustrated by the experiments of Pezzi and Clerc⁽¹⁴⁾ who, in 1920, accidentally observed an auricular fibrillation produced spontaneously in a dog after opening its thoracic cavity and pericardium. The object of the experiment was to gauge the toxicity of quinin. The arrhythmia had been in progress for forty-five minutes, when the animal was quininized, after which the arrhythmia was suddenly followed by normal rhythm. Extending their investigations regarding the effects of quinin in auricular fibrillation they observed that in dogs previously quininized, it was almost impossible to induce the arrhythmia by faradisation and when fibrillation was induced, it was ephemeral and always very much less marked than in dogs not previously treated with quinin. The authors claim that these findings confirm those of Hecht and Rothberger in 1919, who reported the uniform reduction of auricular fibrillation in dogs, by the intravenous injection of quinin sulphate. In animals so treated, intense faradisation failed to cause auricular fibrillation. Pezzi and Clerc have also shown that nicotin, which invariably produces auricular fibrillation in dogs, has no such action when the animal has been previously quininized. They have had the same results with barium chlorid which fails to develop immediate fibrillation of the auricle always following in dogs not previously treated with quinin.

DOSAGE.

The dose required to restore normal rhythm is variable, some patients responding to small quantities. In consulting the literature on the subject it is not rare to find a number of cases in which fibrillation has promptly yielded to the trial

dose of 3 grains, usually given to test the patient's susceptibility. When this is found absent 5 to 10 grains, repeated 3 or 4 times a day, is the dose usually recommended; the average dose is 4 to 7 grm. over a period of 5 days. John Hay reports that the average dose recommended by English cardiologists is 5 to 10 grains three times a day, sometimes increased in obstinate cases as far as 3 grams a day. A maintenance dose of 3 to 5 grains once or twice a day after restoration of normal mechanism and continued indefinitely or with short periods of interruption, meets with widespread favor—Lian⁽¹⁰⁾ favors 20 c.gm. four or five times a day, continued for one week following the return of normal mechanism, then he prescribes alternately for 3 weeks, 20 c.gm. of quinidin for 5 days and 1/10 mg. of crystallized digitalein for five following days, completing the treatment by continuing for some time the alternate use of digitalis and quinidin, the patient taking 4 or 5—20 c.gm. doses of quinidin a day during the first five days of each fortnight, followed by 1/10 mg. of crystallized digitalein a day during the first five days of the second week. Sir Thomas Lewis advises 0.2 to 0.4 grms. in divided doses, the allowance being from 1 to 2 grms. a day. Some have carried the dose to impressionistic heights, apparently with no untoward results. Drew Luten⁽¹¹⁾ reports a refractory patient to whom increasing daily doses were given for 16 days; on the 16th day he received 240 gr. in the 24 hours. Nothing happened except nausea and vomiting. A few days afterwards, he was discharged feeling quite well but still fibrillating. Nathan Sidell and Frederick G. Dorwart⁽¹⁵⁾ tabulate a number of cases in which the dose was gradually increased to 75, 90 or even 200 grains in the twenty-four hours. Such huge dosage is interesting from the viewpoint of tolerance which some patients show to quinidin, even in a decidedly advanced stage of decompensation, but it is questionable whether it were not to the patient's better interests to give preference to more conservative dosage or to repeated trials, al-

lowing a period of rest between trials, rather than the display of such therapeutic virtuosity.

The danger of clotting in the fibrillating auricle with the possible result of embolism which attends the restoration of normal rhythm has been at all times the principal objection to quinidin. Mackenzie rejects it on the plea that the danger of fibrillation is not so much the disturbed rhythm, as the exhaustion depending on the increased ventricular rate. He cites a case of auricular fibrillation⁽¹³⁾ in a patient of seventy-five years of age who had been fibrillating for fifteen years without interruption and to whom he had refused treatment.

Viko, Marvin and White⁽¹⁶⁾ have reported a number of cases of auricular fibrillation, some treated with quinidin and others without it; the report purporting to prove that there is very little difference, if any, in the danger of embolism following quinidin therapy, compared with other methods of treatment. In a series of 484 cases treated with quinidin, 15 developed embolism and in another group of 200 cases treated without quinidin, embolism occurred in 16 cases.

Robert Levy⁽⁸⁾ presents a similar table on a smaller scale: in 50 cases of auricular fibrillation, 25 were treated with digitalis alone and 25 with digitalis and quinidin. Of the 25 cases treated with digitalis alone, five developed embolism and in the group treated with quinidin, only *one* suffered from embolism.

John Hay⁽²⁵⁾ reports that at a meeting of the Cardiac Club in Edinburgh in 1923, the value of quinidin in auricular fibrillation was discussed. It was found that of 286 cases including 265 of auricular fibrillation and 21 of paroxysmal tachycardia and auricular flutter, embolism occurred in 7 cases only.

There seems to be but little doubt that clotting in the auricles occurs more frequently during the prevalence of auricular fibrillation than when the rhythm is nor-

mal. This has been demonstrated by Thomas Lewis⁽⁹⁾ who in 76 post-mortem examinations of patients dying of chronic heart disease in which clots were sought, found them in 8 cases out of 23 in which fibrillation was present in the last illness and in only 4 cases out of 53 in which the mechanism had been normal, but it did not appear to him that embolism due to the detachment of these clots was more common when fibrillation existed than when the rhythm was normal. It is evident that when there are clots in the auricles, the danger of embolism is ever present, whatever be the rhythm, normal or abnormal, but it is equally evident that such influences as emotion, effort or various forms of medication are just as potent, if not more so, in causing embolism than the return of a fibrillating auricle to sinus rhythm. In consideration of these facts, with due allowance for some possible doubt concerning the exact cause of death in some cases, and when the natural disposition to embolism in heart disease is considered, it is clear that the danger of embolism following quinidin has been much exaggerated. The evidence condemning quinidin will therefore always remain lame and inconclusive.

Similar deductions apply regarding sudden death not due to embolism. However, normal mechanism is usually followed by so much improvement in cardiac reserve with its attendant restoration to comfortable and useful life, in contrast with the discomfort and invalidism of a quivering heart, that the risk of embolism or even sudden death is amply justified.

However, it is well to remember that compensation is not always restored after the establishment of normal rhythm. Korns⁽⁷⁾ reports cases of patients who seemed totally indifferent to fibrillation or normal rhythm, or even to transitional mechanisms. He cites a patient, who, "while maintaining a normal rhythm under the influence of quinidin, suddenly developed auricular flutter with immediate doubling or tripling of the ventricular rate and where

other changes occurred repeatedly without notice to the patient or modification of his condition. His subjective and objective signs seemed entirely independent of fibrillation, flutter or normal rhythm". Such cases are exceptional. Regular rhythm, even though it be normal only from the standpoint of ventricular rhythm, regardless of any deviation from sinus rhythm, is in some cases quite an advantage to the patient as is shown in the report of Case No. 1 appearing at the end of this paper.

CONTRA-INDICATIONS

Much disappointment and discredit to both the attendant as well as to quinidin can and should be avoided by the proper selection of cases. Thomas Lewis claims never to have had a case of embolism following quinidin, probably on account of his care in avoiding cases where it is contraindicated. The most important contraindications are: 1. Advanced myocardial insufficiency. 2. Congestive heart failure, especially when associated with multiple valvular disease. 3. Fibrillation of long standing. 4. Idiosyncrasy, or when early unpleasant symptoms accompany treatment and persist; in such cases normal mechanism is not likely to occur. 5. Palpitation or distressing increase in ventricular rate is apt to lead to ventricular tachycardia followed by ventricular fibrillation. However, tachycardia, if due to conversion of fibrillation to flutter, is no indication to interrupt the treatment, provided there is no evidence of serious cardiac or circulatory unbalance. 6. A history of previous embolism. 7. Auricular fibrillation occurring with cessation of attacks of angina. 8. No response to digitalis.

INDICATIONS

1. When fibrillation is paroxysmal and occurring in undamaged or slightly damaged hearts, either from myocardial or valve disease. 2. When the cardiac upset dates from the beginning of fibrillation. 3. When fibrillation occurs during the course or follows an acute infection. 4. Lastly, in thyrotoxic cases especially when fibrilla-

tion continues after successful treatment of thyroid conditions, either by surgical or medical treatment.

Without disregarding the importance of discriminating between suitable and unsuitable cases there are numerous instances where every contraindication to quinidin exists, such as badly damaged hearts, congestive heart failure, valvular lesions and fibrillation of many years' duration, where notwithstanding, quinidin restores normal rhythm, alleviates suffering and prolongs life. In the report of Viko, Marvin and White⁽¹⁶⁾ it is shown that in 75 unselected cases, restoration occurred in 68 per cent of the cases. A higher rate of response to and maintenance of normal mechanism occurred in arterio-sclerotics than in rheumatics, probably, the authors infer, on account of the greater frequency of congestive heart failure in rheumatics; undoubtedly in such cases greater care should be observed and the danger signalled to the patient or to his relatives whose consent should be an important factor in deciding whether or not the treatment is to be tried.

The two cases here presented are useful in so far as they demonstrate some interesting indications for quinidin and the phenomena apt to follow its use.

Case I. Mrs. M. J., 68 years of age; history of arteriosclerosis 30 years duration; had a labyrinthine hemorrhage about 26 years ago. Blood pressure 200-240/110-120. Kidneys normal, last functional P-S-T test six months ago showed 68 per cent elimination. For the past 4 years she has had frequent attacks of edema of the lungs accompanied by auricular fibrillation which at first promptly yielded to digitalis. In July, 1925, however, following an attack of edema of the lungs with its accompanying auricular fibrillation, cardiac failure was relieved by digitalis, but fibrillation became permanent. After five or six weeks of continuous fibrillation, we decided to hospitalise her and give her quinidin. The electrocardiogram confirmed the diagnosis. After thorough digitalisation: 25 drops tinc. digitalis 3 times a day for 3 days; a test dose of 3 grains of quinidin showing no idiosyncrasy, she was given 5 grains every 4 hours; after the 5th dose her pulse became regular with a rate of 70. Quinidin was continued in 5 gr.

doses three times a day for one week and then discontinued. Since that time she has had frequent attacks of fibrillation with congestive heart failure which in some instances were quite acute, the lungs filling with rales. The attacks, some of which were in progress for several days, were uniformly relieved by quinidin preceded by digitalis. Once in June, 1926, during one of her attacks of auricular fibrillation, as there were no signs of congestion of the lungs she was given 5 grains of quinidin every 4 hours without preparatory digitalisation, with no relief; quinidin was discontinued for a few days and digitalis given in 20 drop doses every 4 hours until signs of digitalisation appeared. Digitalis was then discontinued and quinidin given every 4 hours in 5 grain doses, with the appearance of a regular pulse of 70 per minute after the 4th dose. On February 25, 1927, after an unusually severe attack, treatment was resumed with the same successful result; an electrocardiogram showed that although the patient was very comfortable with a pulse regular in rhythm and rate, she had a decided right bundle branch block and the absence of the P wave in the three leads showed that the auricles were still fibrillating. On April 15, 1927, after recovering from an attack and with a regular pulse of 70, the electrocardiogram showed marked improvement in the branch block, an inconspicuous P wave appearing in the first two leads. Maintenance doses of quinidin, 3 grain capsules, were prescribed twice a day in the attempt to abolish the recurring attacks, and for five weeks, the longest interval between attacks in the history of the case, the heart remained regular, but as the patient became nauseated, fearing that the treatment was responsible for upsetting her, and without consulting me, she discontinued quinidin; as a result, fibrillation recurred. She was again treated with digitalis and quinidin and as on previous occasions, regular ventricular action followed the fourth 5 grain dose of quinidin, and to this day she has had no recurrence. She is still taking her two 3 grain maintenance doses of quinidin.

Case II. Mrs. G., about 58 years of age, was seized on January 14, 1927, with violent palpitation and dyspnea in the effort to raise a door which had become unfastened from its hinges. She had enjoyed excellent health until a year before her last illness when a carcinoma of the uterus was detected. Her general health however seemed not much altered. When seen, the heart which had never before given trouble, was totally irregular with a large pulse deficit, rales were present at the base of both lungs. Twenty-five drops of tr. of digitalis every 4 hours for 3 days relieved the pulmonary congestion, but the arrhythmia was unaffected; digitalis was discontinued and 5 grain quinidin capsules given every 4 hours. Complete relief followed the third dose. She was

seen the following morning and instructed to remain absolutely quiet for a few days. Feeling so well and comfortable, she ignored the instructions and walked to her kitchen to prepare her supper when she suddenly fell to the floor, dying instantly.

In Case 1, the notable features are: 1. That auricular fibrillation may be present with a pulse normal in rhythm and rate. Mackenzie reports a similar case⁽¹²⁾ referring him to Lewis for electrocardiographic tracings which revealed that the auricles were fibrillating, the patient's pulse being regular. 2. The uniformity of results when quinidin was preceded by digitalis. We have not repeated the experiment of giving quinidin without preliminary digitalisation in this case, after the one failure of quinidin, not preceded by digitalis. 3. The comfort and relief of the patient when the pulse rhythm and rate became normal, although distinct departure from sinus rhythm appeared in the electrocardiogram. 4. The remarkable effect of small maintenance doses of quinidin. 5. The brilliant results of quinidin when the origin of fibrillation coincides with the first signs of cardiac upset.

In Case II, as no post-mortem examination was made, the cause of death remains obscure: cerebral embolism, or hemorrhage, or heart failure? The moral however, is the necessity of insisting on rest in bed for a few days after quinidin has regulated the pulse.

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DISCUSSION

Dr. A. E. Fossier: Dr. Bayon has so fully and so thoroughly covered his subject that it is very hard for me to discuss it. All that is left for me to do is to repeat some of the many good points he has given us.

The first thing to be considered is the action of quinidin: Its auricular action is the restoration of sinus rhythm due to its power of increasing the refractory period of the auricular muscle fibers, this causes an abrupt termination of the circus movement, which is said to be the cause of fibrillation and auricular flutter. The P-R interval is often at first lengthened, but soon returns to normal. Besides, quinidin lowers the conduction rate in the auricular fibers which results in a reduced number of fibrillations. As long as the fibrillations remain about 350 to 500 per minute, the rhythm is that of fibrillation; if they are lessened, two things happen: first, sinus rhythm will be abruptly restored; second, auricular flutter will take place. Once flutter is established, if quinidin is pushed it will terminate in sinus rhythm.

The action of quinidin on the vagi is opposite to that of digitalis; digitalis increases vagal tone and diminishes ventricular rate; quinidin lowers vagal tone and increases ventricular rate. This increase of rate may be so great as to cause discontinuance of the drug. Digitalis is given to prevent this possibility of its producing heart block.

The absorption and elimination of quinidin are most important factors to consider. It is more rapidly absorbed and more quickly eliminated than digitalis. Auricular flutter may occur as early as two hours after the administration of quinidin.

The elimination of quinidin is also very rapid. It usually disappears from the urine within 12 to 24 hours. It should be prescribed at shorter intervals, while digitalis should be given at longer intervals.

I fully agree with Dr. Bayon that a good many of the deaths attributed to the use of quinidin may not be occasioned by the drug. The doctor has given us statistics which prove his contention that many of these cases which terminated fatally after the use of quinidin would have died if they had not taken quinidin. I know it has prevented a good many physicians from using quinidin when they could prescribe it with a large margin of safety. Of course, there are precautions to be observed. Quinidin is a cardiac and respiratory depressant. Sudden death and embolism may attend its use, attacks may occur; but this may happen under any other circumstances, therefore this should not mitigate against the proper use of quinidin.

In the administration of this drug we must, as much as possible, select our cases. The standard of selection I generally use are that the circulation must be efficient without the help of drug while the patient remains in bed, and there must not be any edema, albuminuria or enlargement of the liver. Then quinidin may be given irrespective of the heart condition. Treatment should be inaugurated when patient is well enough to be discharged, otherwise it must be employed with great caution. It is a dangerous drug in exhausted heart muscle.

Now, the method of administering the drug. Frey's method of administering the drug is my choice. We give six grains in the morning; one dose of six grains the first day, two doses of six grains the second day, three doses of six grains the third day, until the maximum of ten doses of six grains are given in one day. The doses are to be repeated every two hours. The best time to begin the administration of the drug is early in the morning. The absorption and elimination of the drug is so rapid that in giving it at such short intervals it produces no ill effect. You can let your patient up a short while after he has been benefitted from the use of the remedy.

I must also caution you to record frequently the rate and the volume of the pulse. The electrocardiograph should also be used in these cases frequently as a control. No rhythm is to be accepted as sinus rhythm unless it is confirmed by electrocardiograms. Once sinus rhythm is established, the drug is to be discontinued. In the more severe cases we have got to go most carefully. Occasionally we are never able to bring our cases down to the ideal standard.

I wish to emphasize what Dr. Bayon so ably proved tonight, that there is only a minimum amount of danger in using quinidin.

Dr. J. H. Musser: Two features of quinidin therapy that Dr. Bayon did not bring out in his paper—perhaps did not intend to bring out—might be explained. One is that quinidin has practically no value in long continued cases of fibrillation; if fibrillation has been of short duration quinidin may have a very excellent effect. Another thing that should be mentioned, and that is, that a good deal depends on the etiology of the particular cardiac disturbance that is responsible for the auricular fibrillation. I do not wish to imply that we never get good results with quinidin; on the contrary, in a number of cases of rheumatic heart disease that have come under my observation, the effect of quinidin is sometimes brilliant. I must confess, with such a drug as digitalis on hand, which we use so frequently, and which has proved its value, it seems to me that quinidin should be reserved for a few selected cases only. Incidentally, there is another use to quinidin which was not mentioned (of course Dr. Bayon was discussing auricular fibrillation), the benefit you get with nervous individuals having frequent ectopics; if you put them on quinidin they will be very materially benefitted by having the frequency diminished, or the ectopics actually stopped. Mentally at least this seems to help them quite considerably.

Dr. Randolph Lyons: Dr. Bayon is to be complimented on his interesting paper.

I would like to sound a warning about the use of quinidin in fibrillation. I have had a number of cases of transient fibrillation where the fibrillation only persisted a few hours to a few days, in whom it was difficult to tell whether the cessation was due to the drug used. I give quinidin to patients that can not be controlled with digitalis first, but when the fibrillation stops a few hours or days after administering it, I am not always certain that the change can be ascribed to the drug.

I do not wish to imply that quinidin has not much value in the control of fibrillation, but that we have to be cautious in interpreting our results; a good many of these cases of fibrillation would cease spontaneously without quinidin or any other drug.

Dr. Geo. R. Herrmann: Dr. Bayon has indeed presented us with a complete resume of the literature on quinidin. His unusually spectacular results have, I fear, made him a bit partial to the drug. I cannot agree with his contention that the fibrillary auricle is just as likely to send forth broken off bits of thrombus which may act as emboli as is the auricle which has been changed from fibrillation to normal mechanism. As we all know in fibrillation there is no contraction of the auricle whatever. The fibrillary tremors appear only in the dilated walls of an engorged, in-

active auricle, and the effects of these fibrillary waves upon the content of the auricle is practically nil, while when normal mechanism is resumed a coordinated pressure of the contents again comes into play. In cases in which the onset of auricular fibrillation is of recent date and in which there has been little opportunity for thrombi to form, conditions which are common to the auricular fibrillation of exophthalmic goiter, quinidin is, of course, the drug of choice since digitalis has very little effect on this type of auricular fibrillation. When other acute post-operative paroxysms or transient auricular fibrillation or that that occurs in acute infectious diseases are encountered, quinidin is most certainly indicated, but for the disturbances that are present in chronic heart disease, it is, I feel certain, only the special case in which the results are as brilliant as those that Dr. Bayon has experienced.

It is, however, good to have clinicians who are brave enough to take the chance, for certainly the faint of heart and those who are gun-shy from accidents with the drug cannot hope to settle the matter, and probably frequently deny their patients a drug which might be most useful. The contraindications, however, must be kept in mind. Idiosyncrasies to the drug must, of course, first be ruled out by minute test doses. It can do no harm to reiterate the fact that patients who have suffered embolism previously or who have vegetative endocarditis or who have a high grade of heart failure or who have cardiac pain, that was relieved by the onset of fibrillation, should not be given quinidin.

Late Results From Tryparsamide Therapy in Neurosyphilis.—On the basis of his experience and a review of results after the lapse of from five to six years, W. F. Lorenz urges that every case of syphilis of the central nervous system be treated energetically. Tryparsamide and mercury offer a convenient and remarkably effective treatment. It is necessary to select cases in making a choice of tryparsamide, other arsenicals, malarial inoculation or other therapy of proved value. In the instance of tryparsamide, an extensive trial should be made before the drug is discarded. There are now many patients who have enjoyed health and efficiency for periods of from five to six years as the result of treatment with tryparsamide and mercury. These are largely cases that would have otherwise, without doubt, passed on to hopeless chronicity and death. As a result of this review, it is Lorenz' conviction that absolute differentiation by either clinical or serologic evidence between amenable and resistive cases cannot be made before a therapeutic trial. Early improvement is very encouraging and argues for a persistence of the effort instituted. Lastly, a point that cannot be too much emphasized is the practice of regarding every case as an individual problem in which all the evidence, clinical and serologic, must be weighed before planning the therapeutic attack.—J. A. M. A., April 21, 1928.

SOME PRINCIPLES UNDERLYING THE SURGICAL MANAGEMENT OF LESIONS OF THE STOMACH*

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A discussion of duodenal ulcer is not within the scope of this paper. That is a subject of tremendous importance and should be the basis of a monograph. Chronic duodenal ulcer is probably the most common surgical lesion of the upper intestinal tract, and yet it is fraught with the least of cancer potentialities. The duodenum possesses an extraordinary immunity against malignant disease and primary cancer is seldom found there. The pylorus is a sort of "dead line" across which cancer seldom passes.

Ulcer of the stomach is a rare disease although early writers thought it to be of common occurrence. For all practical purposes, every gastric ulcer should be regarded as a potential cancer. Many gastric lesions which appear benign even after a careful roentgenologic study later prove to be malignant. Gastric ulcers undergoing carcinomatous transformation and early localized primary carcinomatous ulcers compose a group of most interesting and hopeful cases. One-third of all the cancers in men and one-fifth of those in women occur in the stomach. No one can definitely estimate the exact frequency with which benign gastric ulcer becomes malignant. Neither can it be determined how often cancer develops on pre-existing benign gastric lesions. Petterson places the percentage as low as 2 per cent while MacCarty once thought such a transformation occurred in 71 per cent of all cases. Somewhere between these two extremes the actual occurrence will be found. Although Eusterman has recently written more hopefully regarding the prognostic value of gastric acidity in elderly people suffering from chronic gastric ulcer, yet the acid

*Read before the North Mississippi Six County Medical Society at Water Valley, Miss.

factor alone should not afford a sense of false security to such patients and keep them from obtaining the benefits of surgical removal of the ulcer while it is in a curable state. The chief complaint in chronic ulcer is pain, usually regular. The pain up to a certain period is relieved by food. The time of occurrence of the pain with reference to food intake will vary according to the location of the lesion.

In our clinic about 25 per cent of the duodenal ulcers are treated surgically. When the patients are not sufficiently relieved by medical management, when bleeding occurs repeatedly, when obstruction interferes with adequate nutrition or when perforation occurs, the surgical indication is definite. When a demonstrable gastric ulcer is found and no contraindication exists, immediate surgical treatment is advised. The results have justified this procedure when the ulcer is accessible and amenable to surgery. The ulcer may be excised with the knife or cautery and the excision supplemented by a gastro-enterostomy. This operation has given most satisfactory results. If the ulcer is large and so located that a partial gastrectomy offers the patient a better chance for cure, a resection is done and, if possible, the continuity of the intestinal tract restored by the Polya technic. In some instances the Bilroth No. 1 or No. 2 type of operation may be selected to meet certain indications.

Occasionally a very large ulcer will occur high up on the lesser curvature or posterior wall and be so inaccessible that excision or resection is not technically possible. Some years ago Moynihan suggested treating such ulcers by making a large gastro-enterostomy opposite the crater of the ulcer and supplementing this by inserting a jejunostomy tube a few inches lower down the jejunum. The patient may be nourished through this tube a sufficient time to allow the ulcer to heal. This method was used in one of our cases some five years ago. The patient was a woman 56 years of age who had a huge ulcer on the lesser curvature near the car-

dia, perforating into the under surface of the liver. A posterior gastro-enterostomy was done and a jejunostomy tube inserted eight inches below the anastomosis, through which tube the patient was fed for 120 days. No food nor drink was allowed by mouth until after the tube was removed. The fistula closed spontaneously and the patient made an uneventful recovery. She is entirely well and a recent roentgen-ray examination showed the stomach had practically returned to normal condition.

GASTRO-ENTEROSTOMY.

Gastro-enterostomy has the widest range of usefulness of all operations for benign lesions of the stomach and duodenum. When the indications are adequate and the technic of performance proper, gastro-enterostomy leaves but little to be desired and complications are rare. Its simplicity, safety and efficiency make it the most firmly established of all operations on the stomach. It is true that the results are not always perfect but they probably reach a higher percentage of satisfaction than any other operation so far used. Gastro-enterostomy is unsurgical in principle but the most efficient makeshift so far developed. It is occasionally necessary to disconnect the anastomosis. Gastro-enterostomy has been done in two groups of cases: 1. The necessary; 2. The unnecessary. According to Balfour the unnecessary gastro-enterostomy discredits the surgeon but not surgery. Gastro-enterostomy done on account of conditions simulating ulcer, atony of the stomach, hemorrhage not due to ulcer, etc., has brought the operation into more or less disrepute in the minds of many medical men and some surgeons. The only necessary condition demanding gastro-enterostomy is a demonstrable lesion of the stomach or duodenum. A necessary gastro-enterostomy may be followed by poor results. Occasionally the anastomosis may be poorly made, the location of the stoma improper or some intra-abdominal pathology overlooked or not removed at the time of the operation. These may be some of the reasons for such apparent failures.

Recurrent or marginal ulcers occur in a small per cent of cases and usually demand another operation to disconnect the anastomosis. Gastro-jejunal ulcers may be caused by the same agent that produced the original ulcer if the cause has not been removed. It is probable that some patients are unusually susceptible to ulcer formation. All foci of infection should be removed as early as possible when any ulcer, whether primary or secondary, is being treated. Marginal ulcers do not respond well to medical treatment. As soon as a definite diagnosis is made, the ulcer should be treated surgically by one of the following methods according to the indications: 1. If the original ulcer is healed and the pylorus not obstructed, a simple disconnection of the anastomosis will suffice. 2. Disconnection and some type of pyloroplasty. 3. Disconnection supplemented by a new gastro-enterostomy or a plastic operation on the old anastomosis after excising the ulcer. 4. Disconnection and partial gastrectomy, preferably by the Polya technic.

Gastro-jejunal ulcers occasionally perforate into the colon. This complication has occurred in two of our cases. It is a formidable sequela and one that demands immediate separation of the colon, the stomach and the jejunum. Fortunately, simple separation was all that was necessary and resection was not done. Both patients have entirely recovered and are apparently in good condition. There has been no reactivation of the primary ulcer.

Multiple ulcers are found far more often than they were formerly thought to occur and for this reason radical resection is gaining ground. In order that the ulcers may be removed at the time of the primary operation, partial gastrectomy is becoming more and more the operation of choice for many benign lesions of the stomach. It is safe and complete and removes the lesion whether single or multiple. In the hands of experienced surgeons the mortality from partial gastrectomy appears very little higher than from excision of the ulcer and

gastro-enterostomy or gastro-enterostomy alone.

CANCER.

Some one has said that the body lines of cancer cross in the stomach. In the United States 100,000 people annually die of cancer. Approximately 37,000 of these deaths are due to carcinoma of the stomach and liver. We know that primary cancer of the liver is rare and, eliminating this group, it is certain that well over one-third of cancer deaths are due to carcinoma of the stomach alone.

In the sixteenth century the average length of life was about 22 years. Today the span is well beyond 56 years. Much progress has been made in salvaging the lives of infants and children, thus permitting a larger number of people to reach middle life. Cancer begins to take its toll, as a rule, at or beyond middle life, and on this account the relative proportion of cancer deaths is more apparent. Unfortunately, we are not yet able to salvage the same proportion of adult life as we have in infants and children. This is a problem that our present generation should endeavor to solve.

What can we do about it? There can be but one answer. Make early diagnoses. The treatment is perfectly plain. No cancer of the stomach has ever been cured spontaneously or by medical means. The surgical removal of the malignant lesion while it is confined to a local area is the only hope for a permanent cure.

The pessimistic attitude of the laity, as well as the profession, seems justified in the light of present conditions. We are creatures of tradition. This tradition is common to medical men and surgeons equally as well as to people in other walks of life. Our conception of cancer of the stomach must be revised. All medical men are familiar with the text book picture of gastric carcinoma. The picture is one of the last stage symptoms depicting a patient well beyond the bounds of curability. Just so long as text books and instructors

continue to teach late stage symptoms of the disease, progress will be retarded in salvaging the lives of people suffering from lesions of the stomach. People must appreciate the fact that gastric carcinoma may exist with little or no loss of weight, no alteration of appetite, no anemia, with normal gastric acidity and without a palpable epigastric mass. Laymen procrastinate in the fallacious notion that people past middle life all suffer more or less from dyspepsia. The majority of patients apply for examination late or long after the dyspeptic symptoms first manifest themselves. Lack of time or incomplete examination often fails to reveal the potential or real condition in the stomach until after the period has passed when a cure might be affected.

Since the advent of the roentgen-ray as an adjunct in diagnosis, competent roentgenologists have developed all over the country. Co-ordinate team work between the roentgenologist, the internist and the surgeon is making for progress. Thirteen years ago Friedenwald studied 1,000 cases of cancer of the stomach and found only 28 per cent of them operable at the time they were examined. Three and three-tenths per cent of that series were treated by radical resection. Eusterman has recently reported a large series of cases in which he found more than fifty per cent were operable, and forty-six per cent of that group were subjected to radical resection. Thus we see that such team work and some education of the people along the lines of careful examination are accomplishing something toward the end of early diagnosis and extending the operability to a higher percentage of cases. Periodic health audit propaganda should be spread among the people generally, especially those beyond middle life. Any dyspeptic complaint should be warning sufficient to justify immediate examination in which are included the combined efforts of the internist, the radiologist and the laboratory man. If the history is suggestive and a deformity or filling defect is found, the

surgeon should also become a member of the consulting group.

Obstructive lesions at the pylorus present quite different symptoms to lesions at or near the cardia. Lesions in the pars media involving the lesser curvature, the anterior or the posterior wall, often remain quiescent until the disease is well advanced. A small circumscribed cancer near the pylorus may so nearly simulate a benign ulcer, even to the point of an intermittent course, as to deceive the most careful observer. Early surgical removal in such cases is a necessity. It is estimated that the primary location of cancer involves the cardia in less than one per cent. The lesser curvature is involved in about 25 per cent while the pyloric antrum is involved in 60 per cent. This fact alone places the surgical treatment well in the forefront of all remedies. If the reverse condition were true, and the cardia should be the common location, then surgery could be practically eliminated in this process of salvaging cancer sufferers. The inaccessibility of the upper end of the stomach and the technical difficulties encountered in operating almost preclude surgical removal of lesions in that locality.

There is a tendency on the part of the profession to try antiluetic therapy in many cases of gastric lesions. This procedure is probably not justifiable in the light of our present knowledge concerning the appalling number of deaths from cancer of the stomach, most of whom are victims of late diagnoses. Patients have improved under arsenical treatment but this is hard to explain. Arsenic probably stimulates the blood centers, creates a better appetite and a sense of well-being, thereby building up a false security. Syphilis of the stomach is a rare disease while cancer is far too common. If antiluetic remedies are used, their use should not extend over a long period of time and a careful roentgenologic check should frequently be made.

PRE-OPERATIVE PREPARATION.

Moynihan once said, "Surgery has been made safe for the patient; we must now

make the patient safe for surgery." Much can be done in the way of preparation to minimize the risk of operation for cancer of the stomach. Patients who have been on a starvation diet, even though no obstruction exists, can be benefited by a few days of rest in bed with a liberal diet and abundant fluids. In those cases with marked obstruction at the pylorus, the dehydration and starvation are often pronounced and preliminary preparation is imperative. In the latter group of cases, blood chemistry studies are valuable in determining the amount of toxemia present. The chlorides will often be low. Much benefit may be derived by the intravenous administration of sodium chloride and glucose solution given once or twice a day for a short time prior to operation. The margin of safety can be greatly extended by such preliminary treatment.

Gastric lavage repeated every twelve hours should be done for a sufficient length of time to cleanse the stomach entirely. The stomach tube seldom does harm even in the most extensive gastric lesions. Washing out the debris and infected material will render the edematous stomach walls more healthy and permit better approximation and suture during the operation. Pyloric obstruction should not be considered an emergency condition comparable to obstruction farther down the intestinal tract. Time spent in the preliminary preparation is valuable and avails much in the final outcome of many such cases.

Cancer patients are often quite anemic when first examined. The anemia may be due to an actual loss of blood, to hemolysis from disease toxemia, or to both. Treatment of such secondary anemias is not always satisfactory. It has been our custom to use blood transfusions preliminary to operation when the hemoglobin is below 50 per cent. We rarely find an actual increase in the hemoglobin percentage after transfusion but the red blood cell count is often appreciably elevated. A general improvement is noted and the patients experience a sense of well-being, making

transfusion valuable. A case in point will illustrate this beneficial effect. A man, 65 years of age, came to the clinic last fall on account of a large obstructing carcinoma involving the pars media and pyloric antrum. He was a poor surgical risk. Blood examination showed the hemoglobin 40 per cent and erythrocytes 2,500,000. Two blood transfusions of 600 cc. each were given by the direct method without reaction. Very little change was noted in the blood picture but the patient experienced a feeling of improvement, was able to go through the operation satisfactorily and made an uneventful recovery. A palliative gastro-enterostomy was done and he has been reasonably comfortable up to now, which is well more than six months post-operative. This case serves also to emphasize the fact that the mortality as well as the technical difficulties of the operation can be materially influenced by timely attention to proper preliminary preparation.

ANAESTHESIA.

The choice of an anaesthetic should be considered along with the other major factors influencing the treatment of this group of cancer cases. It is well known that pulmonary complications more frequently follow operations in the upper abdomen than elsewhere in the body. This is especially true in cases of stomach resections where extensive operations tend to fix the diaphragm and limit the respiratory movements. Postoperative pneumonias often are fatal in old, dehydrated and debilitated patients. The anaesthetic used, therefore, should be one that least disturbs the pulmonary tissues. It has been frequently noted that operations done under local anaesthesia do not eliminate pulmonary complications. Apprehensive patients may be injured more by using only local than by a properly selected general anaesthetic. The combined use of local anaesthesia and ethylene gas has been very satisfactory in our work, and the pulmonary complications have been reduced to a minimum.

OPERATION.

The golden rule should always be applied in determining the type of operation to be done in such grave diseases as cancer of the stomach. The first aim should be to cure the patient. Finding cure humanly impossible, the next step should be to prolong life, minimize suffering and add to the comfort of the patient during his remaining days. Often this can be done by the use of some palliative type of operation. In a large number of cases the average length of life, following palliative gastro-enterostomy, has been seven months. Where no operation was done, a similar group of patients lived six months after the examination. An average gain of one month in the span of life and added comfort during the declining days may justify an operation. Occasionally, however, one is rewarded by an unexpected cure following a resection of the stomach when the case at the time of exploration was apparently well advanced beyond hope. With the exception of those considered by a competent roentgenologist to be inoperable, all cases not showing definite evidence of metastases should be offered the benefits of an exploration. When the disease is limited to the stomach and adjacent lymph-nodes and does not extend too high to permit a safe anastomosis, the surgeon is usually warranted in doing radical resection. The size of the tumor does not always determine its resectability. Often a large movable cancer can be removed with greater ease than a smaller one that has become fixed to the adjacent structures. The size of the lymphatic glands is not a safe criterion in determining the extent of metastases. If the surgeon has the benefit of a pathologist near at hand, a gland can be removed and a section quickly made. One will often find such lymph-nodes, even though large, entirely inflammatory. Ordinarily a resection should not be done when metastases exist in other organs, but occasionally removal of the growth is justified even though small nodules are found in the liver. Such secondary invasions may grow slowly and

the patient's life be prolonged with lasting good results. In cases of frankly nonresectable cancers of the stomach, there has been a higher operative mortality following simple palliative gastro-enterostomy than has been recorded in the less advanced cases where a radical resection has been done. It is to be noted in the former group of cases, that the patients are very sick and are, therefore, poor surgical risks. Surgeons should, therefore, be very careful in the exploration and decision for or against radical resection.

Crile has emphasized the importance of a two-stage operation. The gastro-enterostomy is to be done first, followed two weeks later by the resection. Attention to preoperative preparation, however, will lessen the need for such a procedure. In cases of marked obstruction where a resection is not advisable, a palliative gastro-enterostomy should be done. The posterior operation is more satisfactory, but on account of fixation the stomach cannot always be drawn through the transverse mesocolon and, therefore, an anterior anastomosis is the only choice. It is surprising how comfortable many patients are made following such palliative short-circuiting operations. They often gain weight and color and the appetite becomes much improved. The declining days are much more endurable after the obstruction has been overcome.

In the event resection has been done, there are several ways the continuity of the intestinal tract may be restored. The Bilioth I is carried out by direct union of the duodenum to the stomach. This is not always satisfactory in cancer cases on account of the tendency of the disease to recur at that point, making obstruction possible later on. The end of the duodenum and that of the stomach may be closed and an independent gastro-enterostomy done, which is Bilioth's second type of operation. This procedure has its advocates and is a very satisfactory operation. The Polya type of anastomosis is probably the most popular and deservedly so. It is made by

uniting the proximal end of the stomach to the side of the jejunum through the transverse mesocolon as a posterior operation. When the stomach is too short to be drawn down through the transverse mesocolon, the ante-colic anastomosis of Balfour can be satisfactorily done. To avoid obstruction and retrograde distension of the duodenum, this operation should be supplemented by an entero-anastomosis uniting the proximal and distal loops of the jejunum.

POSTOPERATIVE TREATMENT.

Gastric lavage should be used frequently in case the stomach does not drain well. It can do no harm and by washing out old clots and offensive accumulated fluids often adds much to the comfort of the patient. Healing is promoted and by securing adequate drainage, the stomach resumes its function more rapidly and the convalescence period is shorter. Fluids should be given frequently and in large quantities. We are using 1000 cc. of 2 per cent glucose, alternating with salt solution every eight to twelve hours during the first three days postoperative. A 5 per cent glucose continuous proctoclysis is used to supplement the fluid intake. All fluids and food by mouth should be withheld for a period of two or three days. Sips of hot water are tolerated better than cold. Liquid diet should be started on the fourth day and gradually increased until at the end of a week the patient is taking a fairly liberal diet. It is surprising how little shock is experienced by such extensive resections. Stimulants are rarely necessary. Wound infection seldom occurs and the patients are usually up on the twelfth day and ready to leave the hospital as early as the average gall-bladder or other abdominal operative patients.

Fifty per cent of the patients live three years or more if the operation is done before the regional lymph-nodes are involved. A few permanent cures will be effected. When the adjacent lymph glands are involved with the malignant process at the time of the resection, the three year

cures drop to 20 per cent or less. In the future, early diagnosis is our only hope for a satisfactory treatment of this desperate group of cases. Very little progress has been made in the clinical interpretation of cancers of the stomach, probably on account of the lack of symptoms present in many cases. As mentioned before, the roentgen-ray as an aid has been the outstanding agent in promoting early diagnosis. A competent roentgenologist will make the correct diagnosis in 95 per cent of all gastric lesions, three out of four of which are malignant.

The appalling number of cancer sufferers should be sufficient to justify every one in having a periodic health examination. This examination should be repeated from time to time, and in case dyspeptic symptoms of any nature should arise, a competent internist and a roentgenologist should be consulted. If the individual is beyond middle life, the examination should always include a roentgen-ray study of the stomach and intestinal tract. Not until our people are educated to a realization of the prevalence of this terrible malady will we begin the real business of salvaging our middle aged and elderly people. A decade or two of intensive education, periodic health audits and properly applied early surgical treatment will enable us to reduce the annual 100,000 death rate to a much smaller number.

Martyrs of Medicine.—The prizes that the world awards for such self-sacrifice and martyrdom are not great. The public has not yet learned to appreciate the type of courage that such men display. The investigative spirit that drives them is little understood by the average man. Indeed, few appreciate the type of mind that caused physicians in the past to suck the infectious membrane from the throats of children strangling with diphtheria, that caused hundreds of physicians to expose themselves to smallpox, to plague and to influenza in their devotion to duty. Such martyrs are merely living up to the traditions of their calling established thousands of years ago. The death of an investigator like Noguchi, whose value to humanity is incalculable, serves but as an opportunity again to remind the public of the trials that medical men undergo and of the service that they render.—J. A. M. A., May 26, 1928.

THE GALL BLADDER.

ITS PATHOLOGICAL CHANGES AND
SURGICAL TREATMENT.

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The gall bladder and its bile ducts are developed from the same mass of cells as the stomach, duodenum, and pancreas; made up of four coats, the mucous, the muscular, the elastic, and the serous. The nerve supply arises by a filament from the vagus, furnishing the motor and secretory impulse to the gall bladder and its bile ducts, and inhibitory fibers to the sphincter of the ampulla of Vater; sensory filaments from the right ninth intercostal segment joined with the sympathetic is known as the inhibitory nerve for muscular structure of the gall bladder.

The gall bladder is a sac with a capacity of 0.75 to 1.5 ounces. The older physiologists maintained its chief function was to serve as a reservoir for the bile during the interval of digestion. The spiral valve found in the common duct at the junction of the hepatic and cystic duct aids the filling of the gall bladder during the interval of digestion. The gall bladder is richly supplied in lymphatic tissue, has great power of absorption and its mucous membrane is arranged to bring the contents in contact with as much surface as possible. The muscular walls are diffuse and weak.

Anatomically the gall bladder is best fitted for absorption, the muscular coat aids in mixing and bringing its contents in contact with the mucosa. Many years elapsed before the old idea of the gall bladder performing any function other than the power of holding and discharging the same amount and quality of bile as discharged by the liver. The gall bladder of today is known to have a great function in health, largely confirmed by the laboratory workers, Mann⁽¹⁾, Graham and Cole⁽²⁾, and many others.

Invasion of the pathogenic organisms attacking its mucous membrane and depositing connective tissue, blocking the lymphatics, changes this organ, which plays such an important part in health, to one that acts as a focus of infection and if not recognized and removed will be the underground soil for invalidism. Today many cases of diabetes mellitus, chronic cardio-vascular disease, and arthritides would be in the class of health were it not for the undiscovered primary focus in the gall bladder and bile ducts.

It is agreed by physiologists who have collected data from laboratory experiments on the lower animals that the gall bladder has the power of:

(1) Regulating pressure within the biliary tract.

(2) Concentration of bile by absorption of its water or fluids.

(3) It has been suggested but not confirmed that blood from the gall bladder empties into the portal vein. It is possible that something is formed in the gall bladder necessary for the liver. Cited by Graham and Cole.⁽²⁾ J. E. Sweet⁽³⁾ has brought evidence suggesting the gall bladder forms something which acts to de-esterize cholesterol esters. It has been shown that bile in the gall bladder is eight to ten times as concentrated as it is possible for the liver to make it, or found in the hepatic duct. During the period the bile is in the gall bladder active absorption of its fluid occurs, passing to the blood stream by lymphatics.

The idea has been advanced that the gall bladder has control of its own cystic duct in order to cause pressure filtration of the fluids of the bile. Sweet, with many other physiologists, thinks under normal conditions only a small amount of bile which enters the gall bladder leaves it by way of the duct; the parietal pockets along the intrinsic and extrinsic hepatic ducts and so-called glands of Luscha which in reality are small pouches in the mucous membrane of the

gall bladder are points in which active absorption occurs.

Early morning operation usually finds the gall bladder well filled (fasting time). The liver manufactures bile at varying speeds but constantly, the digestive activity requiring relaxation of Oddi's muscle to care for the extra amount and variety of food. As soon as the ingested food passes the pylorus the acid chyme causes relaxation of the sphincter at the end of the chole-duct and co-ordinately with this the gall bladder expels a portion of its contents. The bile salts are quickly absorbed from the intestine with an increased liver activity to secrete more bile. During this time more bile passes into and from the gall bladder. Later the stomach becomes quiet and chyme not passing over the papilla, the sphincter opens less frequently, and gradually the secretory action of the liver is reduced to fasting time.

Gall bladder infections are most frequently seen from forty to fifty years of age. However, neither young or old are barred from the disease. Records show that stones have been found in a child of ten, and not infrequently today we find patients with gall bladder disease in private practice or clinics, occurring at seventy years and over, associated often in advanced life with extreme maladies, such as carcinoma of the gall bladder, carcinoma of the stomach, or carcinoma of the pancreas.

The lymph stream is the chief route for gall bladder infection to occur; ascending infection from the intestinal flora is less frequent. Typhoid bacilli, streptococci, pneumococci, and the colon bacillus group are the bacteria most commonly found in infections of the biliary system. The typhoid bacillus inhabits the mucosa and muscular wall of the gall bladder in the early teens, patient remaining free of digestive complaints until middle life when the following complaints are offered. Flatulence, coming on several hours after eating; upper abdominal distress or pain, most

frequently about one or three o'clock at night, located in the upper right quadrant and running into back and shoulder region.

Pathologically the picture is one in which there are areas of connective tissue deposits in the walls of the gall bladder. Mucus and dead bacteria often form the nucleus for the bile salts to be deposited for future stones; tonsils, diseased gums, and abscessed teeth act as frequent foci for gall bladder infection. Pyorrhea alveolaris is responsible for a large percentage of gastro-intestinal infection, such as gastric or duodenal ulcer, appendix or colon disease. Bile obtained from gall bladder specimens will be eighty to eighty-five per cent sterile, whereas microscopical section from the gall bladder will give a high percentage of positives for increased deposit of connective tissue. The gall bladder has been cited above as an organ for filtration of bile. After the bacterial invasion this function is decreased or destroyed, according to the pathology that has occurred in its walls.

Mann⁽⁴⁾ produced chemical cholecystitis by injecting into the blood stream 10 c.c. of chlorinated soda (Dakin's solution) to each kilogram of body weight. A section of the gall bladder as early as six to twenty-four hours revealed definite pathological changes, as infiltration leukocytes and dilatation of the blood vessels extending into the muscularis. Through other experimental investigation for gall bladder filtration the animals were anesthetized and under surgical technique the common duct was doubly ligated and excised between the ligatures; bilirubin did not appear in the blood or urine in any appreciable amount for twenty-four hours following, jaundice not earlier than four days. If the gall bladder was removed or the cystic duct ligated, bilirubin would appear in urine and blood in three hours, jaundice in twenty-four.

Nature has placed on each common, hepatic, and cystic duct at least one lymph node, occasionally two. They have a defi-

nite size in health. If found enlarged at operation it is an indication of excess filtration of the gall bladder, size of the gland depending on the filtration or amount of infection present.

Vincent Lyon⁽⁵⁾ of Philadelphia, was first to push forward in current literature the affect of medical duodenal drainage for gall bladder disease with a twenty per cent solution of magnesium sulphate introduced into the duodenum through the Reyfus tube. This relaxes the sphincter and stimulates the flow of bile. Bile from the gall bladder evidently constitutes part of the bile. Stimulating agents such as three to five per cent hydrochloric acid applied to the ampulla raises the pressure in the common duct to 600 to 800 m.m. through the spasm of the sphincter muscle. Fifteen to thirty m.m. is back pressure found in common and hepatic ducts of animals without normal gall bladder (Mayo)⁽⁶⁾. In man the removal of gall bladder does not produce any appreciable change in the common duct pressure in normal life. Common duct tension, taken under anesthesia, is 75 to 100 m.m. of bile; in the gall bladder it varies from 100 to 200 m.m. of bile. Such pressure within the gall bladder, versus that in the common duct, is capable of filtering the fluids from the bile and increasing the concentration eight to ten times over that of the common and hepatic ducts.

Quain⁽⁷⁾ has found that the common duct traverses the duodenal wall in an oblique way for a distance of 2 to 3 c.m. Copler⁽⁸⁾ and Kodoma⁽⁹⁾ (cited by Graham and Cole) say that this angulation of the duct to the bowel and the distance the bowel wall is traversed by the duct constitutes a sphincter-like mechanism dependant on tonicity of the intestine and makes it possible for the intestinal peristalsis to be a factor in regulating the flow of bile from the common duct. Concentration and relaxation of the duodenum govern the duct drainage. Intervals between the peristaltic waves of the duodenum encourage the emptying of the common duct.

Boyden⁽¹⁰⁾, Sosman⁽¹¹⁾, and others have shown that a meal rich in fat, such as egg yolk and cream, has more relaxing effect on the bile duct and gall bladder, reducing the cholecystographic shadows 1½ to 2 hours quicker than magnesium sulphate. Rountree⁽¹²⁾ and Geraghty⁽¹²⁾ after demonstrating with the different anilin dyes found phenol-sulpho-phthalein to leave the blood by the kidney route and has proven an invaluable aid in determining the secretory power of the kidneys.

Cholecystography, by Graham and Cole⁽¹³⁾, by the administration of tetra sodoiodide-phenol-sulpho-phthalein either orally or by the intravenous route has increased the positive diagnosis of gall bladder disease 85 to 90 per cent. Former roentgen-ray study of the gall bladder and gastro-intestinal tract gave positive diagnosis of gall bladder disease in 8 to 10 per cent. The salt is secreted by the liver; when the impregnated bile leaves the liver and passes into gall bladder it becomes concentrated. Its shadow reveals the approximate size, coats, non-visualized cholesterol stones, time of filling and emptying.

The cases in which we fail to obtain any information from the test are as follows:

1. Those in which insufficient amount of the substance reaches the liver.
2. Inability of the liver to secrete a sufficient amount.
3. Blocking of the cystic duct.
4. Failure of the gall bladder to concentrate the material sufficiently, due to diseased gall bladder wall or too rapid emptying of gall bladder from the duodenal peristalsis.

When the yellow flag of jaundice is raised in disease of the biliary system and its accessory organs the surgical prognosis is usually bad. Jaundice is either hemolytic or obstructive in type. Stones lodged in the common duct are the usual or most frequent cause. The ampulla and middle third of duct are the points where stones are

most frequently placed and are usually milked from the gall bladder.

Operation may show chronic gall bladder with or without stones. Stones can pass from the gall bladder and remain in the common duct without producing symptoms. At operation the gall bladder may not show any gross pathology, microscopical section may be the only mode of estimating the diseased tissue.

Symptoms of Charcot's disease appear when the stone completely blocks or traumatizes the mucosa and invites mixed infection. Often a diagnosis of chronic malaria is advanced but not confirmed by blood smear. The chills and fever have no regularity. Heavy sweats and extreme prostration follow the fixation of the stone. Calcium salts, 10 to 15 grains three times a day for ten to fourteen days, forced fluids, rest in bed and attention to elimination, puts this type case in best condition for surgery, but no definite improvement comes until the stone is removed and the duct drained. The gall bladder should be removed at the same time if there is no malignancy of pancreas or ampulla.

Strictures of the common duct are best treated if resulting from stone irritation, and if the stricture is not too dense, by removing the stone; draining the duct three to four weeks with rubber tubing, and cholecystectomy. If the gall bladder is not removed the stricture is reinfected by the diseased gall bladder.

Cholecysto-duodenostomy or cholecysto-gastrostomy is indicated after removal of the stone if its bed shows massive scar tissue. Internal drainage into the stomach or intestines solves the problem.

Malignancy of the ampulla or pancreas, or growth of head of pancreas requires drainage. Cholecysto-gastrostomy or cholecysto-enterostomy will give better results than placing the tube in the gall bladder for external drainage.

Cholecystectomy is the choice operation for acute or chronic cholecystitis. Chole-

cystostomy is indicated where the infection has extended into the bile ducts, with inflammation of the pancreas. Secondary cholecystectomy may be necessary to restore the patient to health, but should not be done at primary operation in the presence of general infection of bile ducts and pancreas.

Gangrenous gall bladder should be removed, with drainage by means of a small rubber catheter in the common duct at the cystic duct junction. The catheter should be directed to the hepatic surface rather than toward the bowel. Often the end of the catheter passes into the bowel lumen and invites infection. Allow the catheter to remain three weeks or longer.

Abscess, or suppurative cholecystitis should be drained by cholecystostomy. Infections extend, by lymphatics, to the liver, portal vein, post-peritoneal space, omentum, etc.

The surgeon should exercise great care and judgment in pathology of the gall bladder and ducts. He should note the thickness of gall bladder wall, relationship and pathology of neighboring structures, such as adhesions of omentum to gall bladder. A gentle milking of the gall bladder will note the ease of draining its contents. The much spoken of strawberry type of gall bladder will have a delayed emptying time for cholecystography. The mucous membrane of the cystic duct often becomes thickened by extension from the gall bladder. Examine carefully for stones in the cystic duct. Careful probing of the common duct has discovered small imbedded stones in the duct or ampulla, whereas, palpation of the duct failed to reveal stone.

An upper right rectus incision from the rib border downward, to enable good exposure of gall bladder and bile ducts, is the most useful incision. Do not cut the post-rectal fascia and peritoneum for the last two inches in the lower angle of incision, this will not interfere with retraction and will minimize the chances for postoperative hernia.

Drain all cholecystectomy cases. Excise cystic duct close to the common duct, avoid any trauma to common duct, transfix drain, preferably a medium sized soft rubber tube, with No. 1 plain catgut to distal end of cystic duct, allow to remain until it loosens, eight to ten days following operation.

CONCLUSIONS.

(1) The gall bladder is peculiarly fitted for its power of absorption by wide distribution of its mucous membrane, thin muscular coat capable through the wide contraction of its fibres of bringing the mucous membrane in contact with the bile, rich supply of lymphatics, and control of the cystic duct. In health this organ has great function: i. e., absorption of its fluids and regulating the pressure within the biliary tract.

(2) Disease changes the gall bladder from an asset in health to a liability, and if not recognized and treated will act as a focus for infection.

(3) Cholecystography in gall bladder disease gives information in 85 to 90 per cent of the cases, whereas former roentgen-ray of gall bladder and intestinal tract gave only 5 to 10 per cent positive findings.

(4) Jaundice gives the surgical case poor prognosis, and should be given medical treatment in an institution for two weeks or longer before operation.

(5) Pathology found at operation as to biliary tract, pancreas, bowel, and liver should be the guide to operative procedure.

(6) Drain all cholecystectomy cases with a small soft rubber tube transfixed to the stump of the cystic duct.

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POST-OPERATIVE TREATMENT:

SOME PERSONAL IMPRESSIONS.*

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NEW ORLEANS.

We are frequently asked by students and internes to outline a routine of post-operative treatment. In answering this question we have so often found ourselves in conflict with widely accepted doctrines that it seems worth while to record our views. I say we because most of what I know of the subject has been learned from Dr. Urban Maes, and the conclusions given here have been derived from my own experience obtained to a large extent from his service. I shall not try to cover the whole field nor to give details of technique, but shall limit myself to the management of the usual uncomplicated abdominal case with brief comment on a few of the more common complications.

Our principal article of faith is the belief that post-operative treatment is the most annoying, if not the most dangerous, complication to which patients are subjected. That being the case it should be reduced to a minimum, and no deviation made from the usual living habits of the patient, except for reasonable and demonstrable cause. Consideration of fundamental principle of physiology and pathology should determine every move.

When the operation is completed and a light comfortable bandage applied, the subject should be made dry and warm without

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delay or unnecessary exposure. Properly clothed and wrapped in warm blankets he should be transferred to his bed which has been warmed to receive him. No opportunity for loss of body heat is permissible. Chilling reduces resistance to infection, predisposes to pulmonary complications, and aggravates shock.

If a general anesthetic has been used the anesthetist should be in constant attendance until a competent person can assume his responsibilities. Before the patient leaves his hands, the upper respiratory tract must be cleared of mucus and debris, preferably by suction. If for any reason we are in doubt as to the emptiness of the stomach, it should be washed before the throat reflexes are allowed to return. The lower jaw must be supported to prevent blockage of the pharynx by the base of the tongue until swallowing shows the return of reflexes. The head should be turned as far as possible to one side to prevent aspiration of vomited material, or if necessary the patient may be turned on his side when vomiting occurs. This care is extremely important and should not be delegated to orderlies or untrained nurses. Deaths from aspiration of vomitus with asphyxia are not uncommon, and we have had the extremely disconcerting experience of seeing our patient leave the operating room with a single orderly in charge and arrive in his ward dead, with his attendant complaisantly unaware anything untoward had occurred. In addition to this immediate risk we have the more common ones of aspiration pneumonia and pulmonary abscess. While I agree with Cutler, Holman and others that infarction accounts for a great many pulmonary complications, the evidence of David Smith has convinced me that aspiration of exudate from tonsil follicles and from infected gums, is also an important factor.

The patient, after being safely returned to his bed, has three imperative needs; namely: rest, fluids and nourishment. Of these we consider rest the most essential

one, the only immediate one in uncomplicated cases, and subordinate all other post-operative care to its demands.

Rest of course connotes relief of pain and the greatest possible bodily comfort. It is best obtained by administering morphin in adequate dosage and then permitting our victim to enjoy its effects. No other drug approaches morphin in its effectiveness and in those few cases of idiosyncrasy to it, I have uniformly failed to get satisfactory results from substitutes. I would emphasize two things in the use of morphin; first, that it be given in full dosage, not less than $\frac{1}{4}$ grain for an adult weighing 125 pounds, or over; second, that it be given early. The first dose is best injected before recovery from anesthesia and succeeding doses before pain has broken the patient's morale. It should be given freely for the first 24 hours, being limited only by slowing of respiration below 16 per minute. For another 24 hours it may be given sparingly. After 48 hours it is of little or no value for the pain experienced is usually that of disordered peristalsis, widely and unfavorably known as "gas pains." These pains are simply prolonged by narcotic drugs. Large hot stupes frequently or continuously applied, together with a rectal tube afford most relief. Enemas and flushes should be avoided at this stage. If pain is controlled and bodily comfort provided by careful attention to the details of good nursing rest is prevented only by anxious friends and relatives and undue zeal in post-operative treatment by his physician. A little tact on the part of the physician will avoid the former and a little common sense, the latter.

Fluids are essential to the maintenance of circulation and elimination; possibly they are of value in diluting toxins. At any rate, the need is real and demonstrable. However, due largely to the work of Crile, who has done more than any one man to improve post-operative care, the administration of fluids has become a fetish practiced with more zeal than discrimination.

If a patient is dehydrated, the condition must of course be corrected either before or after operation, preferably before. But in the usual operation of election and in many emergencies, no such condition exists. The relative dehydration is not excessive, serious, nor urgent and will usually be corrected in ample time by oral administration. The usual 1500 to 2000 c.c. is ample, and even that may be postponed safely until the initial nausea subsides. Of course if vomiting persists other avenues must be used, but this does not commonly occur. Proctoclysis is quite effective, if properly carried out and suffices for all ordinary needs. In the light of our experience with studied restraint, it is astonishing to see sane and conservative surgeons insist on a daily intake of 4000 to 5000 c.c. in uncomplicated cases, while at the same time urging that rest is of first importance. I am quite unable to see how rest and 5000 c.c. of fluid can be given in the same 24 hours. It is stated that hypodermoclysis by the Bartlett method is painless and that is no doubt true, but no one can say that it is compatible with comfort. Our own experience has convinced us that given a case not dehydrated, not in shock, not severely toxic, and not unduly nauseated, the disturbance of rest attendant on the forcing of fluids by the various mechanical methods does more harm than the fluids do good. Our practice is to give cracked ice and ice water by mouth as soon as consciousness returns and continue with increasing quantities until a normal intake is achieved. No attempt is made to force fluids at any time, unless for special indications.

Nourishment is handled in the same way. Liquids are given freely in small doses, as soon as nausea subsides. Hot drinks are tolerated better than cold in some instances, but no rule can be formulated. Hot tea and coffee, or broth, may be used. Fruit juices sweetened or not as desired are particularly satisfactory and the cold carbonated drinks, such as coca cola are frequently retained when nothing else is.

Sugar is the most valuable food element at this stage, and the current superstition, that fruit juices and carbonated drinks cause gas pains, has no support in physiological, nor clinical evidence. Soft food, including toast, soft eggs, cereals, etc., may be started usually on the third or fourth day. It is probably best to be guided by the patient's desire for food, rather than by the calendar. It is worthy of note, however, that persistent nausea without organic cause will sometimes respond promptly to a small dry meal. Milk must be considered as a solid, since it coagulates in the stomach, and its use postponed until solid food is given, usually about the fifth to the seventh day, depending on the patient's expresse desire for it. We have followed this regime for nine years and note the result with great satisfaction. The only important modification commonly practiced is a rather rigid restriction of proteins and fats in liver and gallbladder cases during recent years, following the reports of Walters and his co-workers. It must be remarked here that Dr. Allen Eustis has insisted on this precaution for many years, with very little local encouragement or support. Nourishment is not an immediate need in operations of election and in those emergencies where normal nutrition was kept up until just before operation. If patient's are not starved pre-operatively, they will stand 24 hours starvation without acidosis or other ill effects, so there is no real need for glucose by hypodermoclysis or infusion, unless complications arise. As for the use of solid food early, it is well to remember that if the stomach functions all food, except sugar which is absorbed high in the intestines and wood fiber which is not absorbed at all, is very much the same sort of material when it reaches the ileum.

In the care of the bowels we meet the powerful influence of ancient traditions. The pre-operative purge that kept patients awake all night before operation, has almost disappeared and the barbarous practice of purging on the third post-operative

day has lost much ground, but the early enema and flush are strongly entrenched and yield slowly, if at all. Peristalsis is arrested by handling the bowel or peritoneum. This paresis is a protective and salutary condition and no attempt should be made to correct it. It is useless to do so for the disturbance of the intestine's peaceful rest results only in a peevish, resentful and disordered response that not only fails to empty it effectively, but causes its unfortunate owner infinite distress. This churning of stagnant bowel contents acts much as a similar process would on beer. If tympanites was not present, it is produced; and if it was present, it is increased and prolonged. If the colon was properly emptied before operation, there is no need for concern about bowel movement. A brief period of constipation does no harm and the disturbance of rest incident to repeated enemas and flushes before orderly peristalsis is resumed is a serious matter. We have practiced studious neglect of the bowel for many years with much satisfaction to ourselves and our patients, though some of them are distressed by the absence of gas pains. Tympanites and abdominal colic are due to intestinal trauma and may be largely avoided. If they occur, hot stupes and a rectal tube to save effort in expelling gas give more relief than any other measures. Orderly peristalsis is resumed on the third or fourth day after which daily enemas will give good results and will suffice for all ordinary needs.

Care of the wound is very simple, if properly carried out. Frequent dressing of a clean wound is needless and a great nuisance to the patient. If no drains have been left in and infection or hemorrhage do not occur, there is no need to change the dressing before the sutures are removed. However, one change two or three days after operation may be worth while if the gauze become badly stained with serum and blood from the incision, for this makes the dressing stiff and uncomfortable. Sutures may be removed on the eighth day,

for at that time union has become fibrous. After removal the skin should be cleaned with alcohol or ether and a dry dressing applied. It is well to inspect again in two or three days for separation of the skin sometimes occurs. Sudden sharp pain in a wound usually means that a hematoma has developed. This should be evacuated and bleeding controlled. Pressure is usually sufficient. Careful inspection for possible wound rupture must be carried out. Rupture usually announces itself by a gush of blood stained fluid, but if the skin remains intact pain or the nausea incident to strangulation of bowel or omentum may be our only warning. Complete resuture of the wound should be done at once, preferably by through and through non-absorbable sutures. The immediate result is almost always excellent, but we have not been so fortunate as Lahey in avoiding incisional hernia.

Fever persisting after the third day should cause careful inspection of the incision for evidence of infection. Redness, local heat and induration point the way to the focus. No instrument is so valuable for examination as the ungloved fingers. Areas of induration require opening with a blunt instrument. If pus is found, it is usually best to remove the adjacent suture, make a free opening and treat the entire area with hot wet compresses. I prefer a saturated magnesium sulphate solution, since it adds a hygroscopic action to the more essential heat. This simple treatment clears up simple stitch infections in two or three days. When extensive involvement of fat and fascia is present, the wound must be opened widely and treated either in the same manner, or by the Carrel-Dakin technique. The latter is best if properly carried out, but quite worthless otherwise, and it is very difficult to use in most hospitals. Antiseptics are quite worthless, unless they destroy the slough and exudates that protect the rear of the advancing army of bacteria. I know of no antiseptic that accomplishes this except Dakin's solution.

A policy of studious neglect of wounds pursued for nine years has been accompanied by an incidence of wound infection less than 2 per cent. Sealing of the defect with fibrin occurs in twelve hours and infection will not occur if we do not pry into it. Brilliant and seductive colors painted on the skin serve only to produce an annoying dermatitis.

It is not my purpose to deal with the serious complications incident to operative surgery, but it seems necessary to consider a few that are so common as to force themselves on our attention.

A slight degree of shock attends all major operations and is unavoidable, but severe shock following ordinary operations indicates a poorly planned, poorly executed, or ill advised operation. It must be borne in mind that there are only three measures of proven value in the treatment of shock; namely, external heat, rest, and fluids, including glucose solutions and blood. Stimulants have never shown results experimentally, nor in our hands clinically. Strychnin interferes with the salutary effect of morphine and should be avoided. I have never seen evidence of improved heart action from digitalis, though I must admit that I have never seen it given in dosage large enough to accomplish anything. A diseased heart needing digitalis should have it before operation and a normal heart will show no benefit from its use.

Fluids may be given by rectum, by hypodermoclysis and by vein. The three methods differ only in the rapidity with which results may be obtained. Infusion is the most certain, the most rapid and produces the least discomfort. I believe that glucose and sodium chloride are the only substances worth adding to water for infusion. It is well to remember that there is a limit to the amount of fluid that may be given with benefit, and that in mild degrees of shock, external heat and rest will give the desired result with a very moderate amount of fluids, the administration of which interferes seriously with rest.

Morphin should be given to the point of maximum therapeutic effect with little regard for the dose required, for in the absence of rest and relief of pain all other measures will fail.

Nausea follows almost all abdominal operations and vomiting follows a great many. It is due to many causes, most important of which are the central effect of the anesthetic and intra-abdominal trauma. For nausea and vomiting in the first three or four hours nothing need be done, except the application of cool compresses to the throat and face. There is no need to withhold cracked ice and ice water in small quantities at this time. They are very grateful to the patient and do not increase the trouble. It is much less trying to vomit something tangible than to retch without effect. If the condition persists stomach washing should be performed without delay. It is by far the most effective measure and should not be delayed until serious gastric dilatation has occurred. In obstinate cases a duodenal tube should be passed into the stomach through the nose and left in place thus providing constant drainage of the stomach and a ready avenue for frequent gastric lavage. Frequent vomiting of small quantities of bile stained fluid indicate acute dilatation of the stomach, or paralytic ileus of the small gut. The consideration of these would lead us too far afield as would also the late appearance of nausea and vomiting, usually with abdominal pain and distention that heralds post-operative intestinal obstruction. Simple nausea may be relieved frequently by sips of hot salty broth, or of ice cold brine, and, as mentioned before, late simple nausea sometimes responds to a small feeding of dry food. The condition is not due to the contents of the stomach, and we believe that it is a mistake to withhold fluids. No relief is obtained by so doing and a burden of intolerable thirst is added to the patient's load. Fluids by other routes never relieve thirst completely.

Retention of urine is very frequent. I believe I have left it to the last, because I can formulate no satisfactory policy for its management. A hot water bottle over the bladder, hot irrigation of the perineum, hot enemas, the sound of running water, spirits of nitrous ether and voodoo incantations may be tried and will sometimes be followed by relief. None of them has half the value of letting the patient sit up or stand and leaving him to his own devices, but unfortunately this is not without risk. Catheterization is frequently required and opinions vary as to when it should be done. The more frequently it is performed, the greater is the risk of infecting the bladder from without, and the longer it is delayed the greater the risk of infection, due to atonic dilatation of the bladder and consequent stagnation of urine. Our conclusion must depend on who is to do the catheterization. With meticulous aseptic technique, the bladder is seldom infected from without and probably the instillation of a non-irritating antiseptic, such as mercurochrome, after the process lessens the risk. If such precautions are observed, it is probably best to empty the bladder whenever it is sufficiently full to produce real discomfort.

CONCLUSION.

You will note that we offer nothing original. The principles governing our conduct of a case were well established ten years ago, and there are more than enough procedures in common use to deal with any need. It is not hard to treat patients after operation, but it sometimes takes real courage not to over treat them. We feel that it is best to treat only for definite indications. I have considered only those indications common to almost every case. If the don'ts seem to preponderate, it is because I feel that the prevailing tendency is to over treat simple cases. Every surgeon should be master of all resources for protection of his patient, but he should weigh carefully the advantages and disadvantages of every measure in the individual case at hand. If this be done, I am

confident that less energy will be expended to no purpose and many troubled bodies will spend their nights in sleep.

DISCUSSION.

Dr. O. C. Cassegrain (New Orleans): After listening to Dr. Rives splendid resumé of post-operative treatment, to me his apology for the choice of such an every-day subject is out of place. Instead, I congratulate him, for I have always felt that it is attention to details, at times apparently trivial, which frequently makes the difference between an easy or a bad convalescence, between success and failure.

The two most common causes of post-operative discomfort are undoubtedly gas pains and nausea, and while not dangerous *per se*, they are certainly very important and a source of great concern to the patient. By following the plan outlined by Dr. Rives we can keep down these complications to a minimum.

Nine years ago, in an effort to lessen the incidence of post-operative gas pains, we divided our service into two sections. The patients in one section were purged the day or night before operation, while those in the other were not purged. It was striking to see how much more comfortable and free from gas pains were the patients who had received no purgative before operation.

Dr. Rives views on the question of post-operative purgation coincide with mine. In our service the purgative is usually given on the seventh day after operation; but an enema is given on the third day and sometimes on the second day.

Dr. Alton Ochsner (New Orleans): There are just a few points which Dr. Rives mentioned that I would like to emphasize; first, post-operative pulmonary complications. There is no doubt that aspiration is responsible for most of these cases, not only when the operation is done under general, but also where local is employed. We had occasion two years ago to examine five patients who had been prepared for tonsillectomy by injecting the peritonsillar structures with one-half per cent of novocain solution. These patients were then given iodized oil to swallow. In all the cases the oil passed in to the trachea instead of the esophagus, demonstrating that aspiration does occur under local anesthesia.

As routine, where there is abdominal distension, we have been using turpentine stupes applied to the abdomen in our abdominal cases. As Dr. Rives brought out, if the use of stupes is contra-indicated, and where the patient has gas pains, we use the therapeutic light, which does not interfere with the dressings and relieves the patients completely.

Now the question arises: What should be done with post-operative urinary retention? These patients should be catheterized. If catheterization is carried out we are not apt to produce cystitis in a healthy bladder. Cabot has shown that catheterization should be done early and one should not wait longer than a period of eight hours; if this is carried out we see few cases of cystitis. Dr. A. J. Ochsner, in those individuals not able to urinate, instilled two ounces of glycerine into the bladder, which procedure invariably gave good results.

Dr. Marcy J. Lyons (New Orleans): Dr. Rives mentioned that he was dealing only with uncomplicated cases, but I would like to get information from him as to how to circumvent an impending paralytic ileus. This condition, of course, we do not recognize until three or four days after the operation, when vomiting and distention occur, and repeated enemas return clear. I have had two or three sad experiences, the last a case in which a simple bilateral salpingectomy, suspension of the uterus and appendectomy was done. This patient took a rather difficult anesthetic and a good deal of manipulation of the bowel was required. She vomited from the time she was operated on, and could not even retain liquids, which were given in small quantities. Proctoclysis was instituted and after being retained for a period of several hours, expelled all at one time. About the second or third day she showed some little distention. The vomiting continued and the distention increased. About the fifth day, after having given several enemas, pituitrin, etc., all of which returned clear, I ordered a purgative in the hope that peristalsis might be restored, and as a last resort, but to no avail. She had a rapid pulse all the way through.

Now I am wondering if the free administration of morphin might not be conducive to a paralytic ileus in certain cases? While thoroughly agreeing in the use of it, I believe that in some cases, especially in those case that give a history of obstinate constipation, and where must manipulation of the bowel is necessary, it might be well to reduce the amount of morphin to a minimum.

Dr. Rives (closing): I have avoided discussion of paralytic ileus as being too big a subject to take up under post-operative treatment. In answer to Dr. Lyons I would say that ileus like "gas pains" is best treated by prevention. If peritoneum and viscera are handled as little and as gently as possible this complication will be very infrequent.

The treatment consists not in attack on the gut itself but in supporting the patient until intestinal paresis is spontaneously relieved and orderly peristalsis resumed. Ignore the ileus and keep the patient alive. Water and glucose must be supplied, preferably by hypodermoclysis or in-

fusion, in large quantity. Five to ten thousand c.c. of 5 per cent glucose every 24 hours is required, for the fluid loss is usually very great. There is reason to believe that the pancreas does not supply a normal amount of insulin at such times and clinically the addition of this substance seems to improve results. Half the amount necessary to burn the amount of sugar given is the usual dose. This measure has been criticized as being irrational but ileus of this type seems to have its origin in the autonomic nervous system and the pancreas receives its nerve supply from the same plexus.

In addition to the supply of food and fluids the acid-base equilibrium must be maintained. Haden and Orr have demonstrated that this is best accomplished by keeping the blood chlorides at the normal level. They found that when this is done dogs with high intestinal obstruction may be kept alive as long as 21 days. We find that in most cases 1 per cent sodium chloride added to the glucose solution is sufficient but 2 per cent may be required in some cases. One case of my own lived with a complete small gut paresis due to mesenteric thrombosis for six days before peristalsis was resumed. Within 12 hours he seemed as well as a patient who had had an uncomplicated severe operation three or four days previously. This is a very valuable addition to the therapy of intestinal paresis and deserves wider use.

Stomach drainage and washing is of distinct value and is universally used. Enterostomy has had very wide use and is supported by the best authorities. I have been a strong advocate and still am in cases of mechanical obstruction, but my faith has been shaken. Enterostomy into a paralyzed gut is useless. It will not drain until peristalsis has been resumed and then it is not needed. If it is to have value it must be done above the involved gut in a portion still showing active peristalsis. This is always difficult and may be impossible due to the crowding of the diseased bowels into the wound. The search for active gut may easily do serious harm.

O-Iodoxybenzoic Acid in Treatment of Infectious Arthritis.—O-iodoxybenzoic acid in the treatment of infectious arthritis, according to Stein and Taube, New York, has three main actions: (1) analgesia, (2) relief of muscle spasm, and (3) reduction of swelling. Of the series of 102 patients reported on, two with acute rheumatic fever were treated by rest in bed plus the administration of the drug. All the others were ambulatory. Ane hundred cubic centimeters of a fresh 1 per cent solution was injected into the vein of each arm alternately every three days and the solution was allowed to run in by gravity. The authors used amiodoxyl benzoate-Abbott.—*J. A. M. A.*, 90:1608-1610. 1928.

TROPICAL DERMATOMYCOSES IN NEW ORLEANS AND LOUISIANA*†

ALDO CASTELLANI, M. D.,
NEW ORLEANS.

The principal dermatomycoses which are usually considered "tropical" are the following:

1. *Tinea cruris* (Dhobie itch, Epidermophytosis).
2. *Dermatitis interdigitalis mycotica* (Mango toe).
3. *Mycotic pomphylia*.
4. *Pruritus ani* of mycotic origin.

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5. *Intertrigo saccharomycetica*.
6. *Tinea albigena*.
7. *Tinea imbricata*.
8. *Tinea intersecta*.
9. *Blastomycosis*.
10. *Sporotricosis*.
11. *Accladiosis*.
12. *Mycetoma*.
13. *Paramycetoma*.
14. *Pseudomycetoma*.
15. *Tinea flava*.
16. *Tinea nigra*.
17. *Pinta*.
18. *Tinea capitis tropicalis*.
19. *Tinea barbae tropicalis*.
20. *Tinea unguium tropicalis*.
21. *Piedra*.
22. *Tricho-aspergillosis*.
23. *Trichomycosis axillaris flava, rubra, nigra*.

CLASSIFICATION OF TROPICAL DERMATOMYCOSES

- I. Due to fungi of the genus
Epidermophyton Lind, 1879,
Trichophyton Malmsten, 1845,
Microsporum Gruby, 1843.

Ep. cruris Castellani, 1905, common variety of *Tinea cruris* (dhobie itch).
Ep. perneti Castellani, 1907, variety of *Tinea cruris*
Ep. rubrum Castellani, 1909, variety of *Tinea cruris*.
T. nodiformans Castellani, 1911, variety of *Tinea cruris*.
T. macfadyeni Castellani, 1905, variety of *Tinea alba*.
T. albicans Nieuwenhuis, 1907, *Tinea albigena*.
T. blanchardi Castellani, 1905, *Tinea sabouraudi tropicalis*.
T. ceylonense Castellani, 1908, *Tinea nigrocircinata*.
T. soudanense Joyeux, 1912.
T. violaceum Bodin, 1902.
T. decalvans Castellani, 1911.
T. currii Chalmers and Marshall, 1914.
T. discoides Sabouraud, 1909.
T. violaceum Bodin, 1902, var. *khartoumense*
 Chalmers and McDonald, 1915.
T. polygonum Uriburú, 1909.
T. exsiccatum Uriburú, 1909.
Microsporum flavescens P. Horta, 1912, variety of *Tinea capitis* and corporis.
T. louisianicum Castellani, 1926.
T. spiculatum Castellani, 1927.

Varieties of
Tinea capitis.

- II. Due to fungi of the genus *Endodermophyton* Castellani, 1909.

(*En. tropicale* Castellani, 1914, *Tinea imbricata*.
En. indicum Castellani, 1911, *Tinea imbricata*.
En. castellanii Perry, 1907, *Tinea intersecta*.)

- III. Due to fungi of the genus *Malassezia* Baillon, 1889.

(*M. tropica* Castellani, *Tinea flava*.)

- IV. Due to fungi of the genus *Cladosporium* Link, 1809.

(*C. mansonii* Castellani, 1905, *Tinea nigra*.
C. madagascariense Verdun, 1913, peculiar nodular affection.)

CLASSIFICATION OF TROPICAL DERMATOMYCOSES—Continued

- V. Due to fungi of the genera *Saccharomyces* Meyen, 1838, *Cryptococcus* Kützing, *Blastomycoides* Castellani, 1926, *Monilia* Persoon, 1797. { Several species, some of which in- } Varieties of blastomycosis.
completely investigated.
- VI. Due to fungi of the genus *Nocardia* Toni and Trevisan, 1889, and *Cohnistrep-
thrix* Pinoy, 1911. { *N. minutissima* Burchardt, 1859, erythrasma.
N. carougeau Brumpt, 1910, juxta-articular nodules.
N. rivierei Verdun, 1912, nodular affection.
C. tenuis Castellani, 1912, trichomycosis axillarum.
C. thibierge Pinoy and Ravaut, 1909, nodular affection.
- VII. Due to fungi of the genera *Sporotrichum* Link, 1809, *Hemispora* Vuillemin, 1906, *Enantiothamnus* Pinoy, 1911, *Scopulariopsis* Bainier, 1907, *Cladosporium* Link, 1809, *Acremonium* Link, 1809, *Acladium* Link, 1809. { *Sporotrichum beurmanni* Matruchot and Ramond, 1905. } Varieties of sporotri-
chosis found in the
tropics.
{ *S. schenki* Hektoen and Perkins, 1900.
S. asteroides Splendore, 1911.
S. indicum Castellani, 1908.
Hemispora stellata Vuillemin, 1906.
Enantiothamnus braulti Pinoy, 1912.
Scopulariopsis blochi Matruchot, 1911.
Cladosporium madagascariense Verdun, 1913.
Acladium castellanii Pinoy, 1916. } Various types of gum-
matous and ulcera-
tive affections.
- VIII. Due to fungi of the genera *Aspergillus* Micheli, 1725, *Sterigmatocystis* Cramer, 1869, *Madurella* Brumpt, 1905, *Indiella* Brumpt, 1906, *Nocardia* Toni and Trevisan, 1889, *Cohnistrep-
thrix* Pinoy, 1911, *Sporotrichum* Link 1806, *Monosporium* Bonorden and Saccardo 1898, *Glenospora* Berkley and Curtis 1876. { *Aspergillus bouffardi* Brumpt, 1906.
Sterigmatocystis nidulans Eidam, 1883.
Madurella mycetomi Laveran, 1902.
M. bovoi Brumpt, 1910.
M. tozeuri Nicolle and Pinoy, 1906.
Indiella mansonii Brumpt, 1906.
I. reynieri Brumpt, 1906.
I. somaliensis Brumpt, 1906.
Nocardia madurae Vincent, 1894.
N. asteroides, Eppinger, 1890.
N. pelletieri Laveran, 1906.
N. bovis Harz, 1877.
C. israeli Kruse, 1896.
Sporotrichum Schenki Hektoen and Perkins, 1900.
Monosporium apiospermum Saccardo, 1911.
Glenospora khartoumensis Chalmers and Archibald, 1916.
G. semoni Chalmers and Archibald, 1917. } Varieties of mycetoma.
- IX. Due to fungi of the genera *Aspergillus* Micheli, 1727, *Penicillium* Link, 1809. { *A. barbae* Castellani, 1907, Aspergillo-
sis of hairy parts.
P. barbae Castellani, 1907, Penicilliosis of hairy parts.
- X. Due to fungi of the genera. { *Aspergillus* Micheli, 1725. }
{ *Penicillium* Link, 1809. } Pinta.
{ *Monilia* Persoon, 1791. }
{ *Montoyella* Castellani, 1907. }
- XI. Due to fungi of the genus *Trichosporum* Behrend, 1890. { *T. giganteum* Behrend, piedra.
Species as yet not well determined. } Tropical varieties of nodular
trichomycosis.
- XII. Due to fungi of the genus *Pityrosporum* Sabouraud, 1903. { *Pityrosporum cantliei* Castellani, variety of tropical seborrhoea.

It should be clearly stated that dermatomycoses "tropical," in the strict sense of the word, are exceedingly few, as exceedingly few are internal diseases which can be called "tropical" *sensu stricto*. In a general way one may say that tropical diseases are merely diseases which are more frequently met with in the tropics than in the temperate zone.

What are the tropical dermatomycoses most common in New Orleans and Louisiana? I wish to state at once that my results are based not only on my own experience but on the researches and experience of men who have practiced in this country for many years, principally Professor Menage and Professor Hopkins, among others, and I should like to express my indebtedness to them for their generosity in placing their results at my disposal.

TINEA CRURIS (EPIDERMOPHYTOSIS).

This is well known as an extremely common condition in New Orleans, Louisiana, and all Southern States, especially in the spring, the summer and the autumn. In recent years it has become common in the Northern States and all over the Continent. It is so common that there is no need of describing it; the patches generally situated in the inguinal region with the well-marked festooned border are typical.

Among the fungi I have isolated in these cases in New Orleans are the following: *Epidermophyton rubrum*, *Epidermophyton cruris*, *Trichophyton nodiformans*, *Trichophyton spiculatum*. *T. spiculatum* is characterized by the presence of numerous spicules on the surface of the growth.

DERMATITIS INTERDIGITALIS EPIDERMOPHYTICA.

This is a localization of epidermophyton and trichophyton infections in the toes. It is extremely common in this country.

In certain cases it may be considered to be a very serious disease. The seriousness of the condition is caused not by the fungus *per se* but by the secondary bacterial invasions. It is not at all rare to find a streptococcus infection engrafted on the

epidermophytic condition—and this streptococcus infection may give rise to a localized painful dermatitis with presence at times of bullae; or it may give rise to an erysipelas-like condition; it may give rise to a lymphangitis with inguinal adenitis and in the Tropics I have seen cases of generalized streptococcus infection arising in this way; repeated attacks of streptococcus inflammation at times cause at first permanent edema then a fibroid thickening of tissues indistinguishable from elephantiasis.

MYCOTIC POMPHYLIX.

This type of epidermophytosis is very common in New Orleans and of difficult cure.

PRURITUS ANI OF FUNGAL ORIGIN.

For some years I called attention to a type of pruritus ani, which is of fungal origin. The patient complains of very severe pruritus, not as a rule continuous, but at intervals. The pruritus is often worse at night, but the attacks of unbearable itching may come on at any time. The inspection of the ano-perineal region in very recent cases may reveal nothing at all except, perhaps, signs of scratching, but in most cases, on careful examination, minute, red, slightly raised, infiltrated patches may be seen in the perianal region, occasionally arranged into two curved lines. In a number of old cases signs of dry or moist eczematous dermatitis are present, and streptococcus and other secondary bacterial infection may become very heavy. If many coli and proteus bacilli are present, the fungus may disappear completely or become extremely scarce.

With regard to treatment, an antimycotic ointment often answers well. My old dhobie itch ointment may be used, consisting of sulphur gr. 30, salicylic acid gr. 30, vaseline one ounce, or Deeks' ointment, may be employed, and is very often successful. Whitfield's ointment, to which 2 per cent carbolic acid has been added, is very useful. A fuchsin resorcinol paint is also useful. In very obstinate cases

roentgen-ray therapy is beneficial. For more details on pruritus ani of fungal origin the reader is referred to my previous publications on the subject, among which is "Pruritus Ani and Pruritus Vulvae of Fungal Origin," *New Orleans Medical and Surgical Journal*, pp. 625-633, vol. 79, No. 9, March, 1927.

INTERTRIGO SACCHAROMYCETICA VEL
CRYPTOCOCCICA.

Some years ago in Ceylon I described a type of intertrigo usually affecting the inguinal region but occasionally other regions, armpits, etc., in which a large number of yeast-like fungi were found. I grew a yeast-like fungus which I called *S. samboni*; later cryptococci monilias and debaryomyces fungi. The condition at first is characterized by the presence of an erythematous, round or oval patch in each cruroinguinal region; the patch rapidly enlarges and sometimes may become festooned. In a later state slight exudation may take place and even a true eczematoid dermatitis may develop. Occasionally a few white spots or patches may be seen which can be fairly easily removed; these consist of masses of the fungus. With regard to treatment I have found glycerine of borax (B. P.) diluted with rose water useful; also the application of a 2 per cent permanganate of potassium lotion, or diluted Tr. Ladi.

Two types of intertrigo saccharomycetica infection may be distinguished.

The primary, as described above; the secondary, in which the saccharomycetic or cryptococcus infection develops on epidermophytic lesions.

TINEA ALBIGENA.

This condition was first observed in Java by Nieuwenhuis. It commences on the palms or soles but may extend upward to the forearms and legs, or downward to the nails. At first it appears as small itchy spots on which bullae appear which burst leaving a desquamating, itching tender area. In course of time a diffuse hyper-

keratosis forms in which deep fissures indicate the natural folds, while horny semi-detached rings surround the sweat orifices. It is very chronic and in course of time leads to a depigmentation of the affected areas which appear like leucoderma patches. This condition is permanent. I have seen two cases of a somewhat similar condition due to epidermophytosis in New Orleans.

Treatment.—Apply tincture of iodine, or Whitfield's Ointment, or a 1-5 per cent chrysarobin ointment.

TINEA IMBRICATA.

This dermatomycosis which is so common in the Far East and certain islands of the Pacific, seems to be absent from Tropical America. The disease is of great interest clinically and etiologically. Clinically, the term tinea applied to it is hardly correct, as the condition is totally different from the usual trichophytoses and epidermophytoses.

The development of the eruption is very interesting. A small, initial brownish spot appears, generally on the arms, chest or back. After a few days this spot splits in the center, and in this way a ring of large, flaky scales is formed, with their bases at the periphery of the lesion; this scaly ring expands peripherally, and while it does so, another brownish spot appears in the center, at the same site as the first brown spot; this new brown patch also breaks in the center, and in this way a second scaly ring is formed inside the second; and so on, until a number of scaly rings are developed.

Manson aptly compared this development of concentric rings to the concentric ripples produced by a pebble thrown into a pool of water.

In very many cases however the eruption becomes diffuse and no rings are seen. The scales are flaky, tissue-paper-like, of large size, up to $\frac{1}{2}$ inch in length, dry, and of a dirty greyish, or brownish color. In my experience, the fungus never invades the hair follicles, but it often invades the nails.

TINEA INTERSECTA.

The eruption begins as small, roundish or oval dark brown pruriginous patches generally situated on the arms, legs, chest or back. The surface of these patches is darker than the surrounding skin with a border composed of minute black papules. Later the tense surface dries, shrivels and cracks, producing white lines intersecting the dark brown patch. Later, when the cracks deepen, curled-up scales, white internally and brown externally, appear. When these scales are removed white patches are left. The brown patches may remain isolated or may fuse together, forming large irregular areas. At times some patches may disappear spontaneously.

The health of the patient is never affected, but there may be a slight eosinophilia.

BLASTOMYCOSIS.

The term blastomycosis covers a group of affections caused by yeast-like fungi. The botanical description of these fungi I have given in previous papers, and it may be found also in Castellani and Chalmers' Manual of Tropical Medicine, third edition, chapters on fungi. Here it may be sufficient to mention a simple classification I have introduced for the use of clinical pathologists:

Of blastomycoides (blastomyces) there are certainly several species. By using mannitol and lactose agar three fungal types can be differentiated fairly easily: *immitis* type, *dermatitidis* (or *Gilchristi*) type, *tulanensis* type. After two to three weeks at 26° the cultures of the *immitis* type are slate black on mannitol, greyish on lactose; the cultures of *dermatitidis* are greyish occasionally slate black on mannitol, dark brown or slate blackish on lactose; the cultures of *tulanensis* are white both on mannitol and on lactose. The fungi should be grown in large tubes.

I have suggested the following clinical classification of the various types of blastomycosis:

<p>Yeast-like fungi (Budding Fungi) — Appearance in the lesions</p>		<p>large roundish cells with well marked granulations and well defined double contour, <i>Blastomycoides</i>.</p>	
<p>smaller cells with double contour absent or faint, and granulations absent or very fine.</p>		<p>Cultures.....</p>	
<p>Mycelium present in some media.</p>		<p>Mycelium media.</p>	<p>absent in all</p>
<p>Ascospores present, <i>Endomycetes</i>.</p>		<p>Ascospores absent, <i>Monilia</i>.</p>	<p>Ascospores present, <i>Saccharomycetes</i>.</p>

1. Blastomycosis, *Gilchrist type*, very commonly found in this country, in Africa, in Asia, very seldom in Europe, characterized by the presence of the well known elevated warty patches with micro-abscesses or well defined oval or round ulcers with granulating or papillomatous fundus, and violaceous border.

2. Blastomycosis, *Wernike-Posadas type* (*Coccidioides type*). In addition to the warty or fungating patches deep destructive ulcerative processes develop. It is principally found in South America where the condition often affects the oral mucus and pharynx. Cases have been found in California.

3. Blastomycosis *sinus forming type* (Blastomycosis glutealis). This generally attacks the tissues of the buttock and is characterized by the presence of numerous sinuses. It is found in Egypt, Ceylon, China.

4. Blastomycosis, *furunculosis type*. Clinically this is indistinguishable from severe furunculosis. It often affects the scalp producing a suppurative folliculitis (folliculitis cryptococcica decalvans). The yeast-like fungi found in this type probably belong to the genus *monilia* (see Gehrman Lectures for 1926, University of Illinois).

The types I have so far found in New Orleans are. 1. *Gilchrist type*, several cases. 2. *Furunculosis type*, one case. I saw a typical case of the *coccidioides type* in Chicago last year—thanks to the kindness of Professor Davis of the Illinois University.

SPOROTRICHOSIS.

This dermatomycosis, although considered to be tropical by several authorities, was, as well known, described first in America by Schenk. The invading organisms may produce in the skin:

(1) A sporotrichic chancre and lymphangitis; this is the localized form.

(2) A series of disseminated gummata.

(3) A series of disseminated ulcers, some resembling syphilitic lesions, other

tubercular, or furuncular, and others ecthymatous.

In addition the fungi may invade the internal organs and cause lesions in mucous membranes, bones, joints, muscles and viscera. I have seen several cases in Europe, India, Central America and in Chicago but so far not in New Orleans.

ACLADIOSIS.

All over the body may be seen sharply defined, roundish or oval ulcers with red granulating cases with or without a purulent secretion which dries into thick yellow crusts. In addition, gummata-like nodules and boil-like lesions may be seen, and enlargement of the superficial lymph glands may be observed. Sometimes the blood shows a slight eosinophilia. Cases with purulent secretion show leukocytosis and suffer from fever at night. This condition first described by me in Ceylon some years ago has not yet been described in America. It is caused by a fungus of the genus *Acladium*: *A. castellanii* Pinoy.

MYCETOMA.

Mycetoma, Madura foot, is characterized by the presence of granulomatous nodules and of sinuses in the foot, occasionally in other regions of the body. From the sinuses a certain amount of pus exudes which contains granules of different color, white, yellow, red, black. Madura foot, though rare, occurs in this country. Cases have been described by several observers.

PARAMYCETOMA.

Paramycetoma is clinically identical with mycetoma, but in the pus no granules are found, the fungi causing paramycetoma not producing sclerotia.

PSEUDO MYCETOMA.

Pseudo-mycetoma is clinically very similar to true mycetoma, the foot being deformed and presenting numerous nodules and occasionally sinuses, but the condition is not of fungal origin. Very often it is a late manifestation of yaws.

TINEA FLAVA.

This condition is characterized by the presence of bright yellow, roundish or oval, patches on the skin of the face, neck, chest and abdomen and arms. A very large number of the natives of the low country of Ceylon and of many other tropical countries, are affected. Sometimes the patches coalesce, giving rise to the diffuse form of the disease. Occasionally, in Ceylon and Southern India, one is surprised to see a Singalese or Tamil native with the face, chest and trunk of much lighter color than those of the other natives. On closer examination it will often be found that the apparently light color of the skin is merely due to a diffuse form of a very light variety of tinea flava. Scrapings from the patches reveal presence of a fungus with the characteristics of a malassezia, and morphologically very similar to the fungus found in pityriasis versicolor of temperate zones. In fact, until recently tinea flava was considered to be identical to tinea versicolor.

I separated it from tinea versicolor for the following reasons:

1. Tinea flava is of much lighter color.
2. It affects the face more frequently than any other part of the body, while tinea versicolor is practically never found in that situation
3. It is extremely chronic, developing in early childhood and lasting for life.
4. It is difficult to cure, while tinea versicolor responds to treatment very readily.

Tinea flava occurs in New Orleans and Louisiana.

TINEA NIGRA.

This dermatomycosis is characterized by the presence of jet-black patches due to a fungus of the genus *Chladosporium*, which I called *C. mansonii* in honor of Sir Patrick Manson. This fungus is fairly easily grown on sugar media, giving rise to black colonies. In some tropical countries the condition is fairly common in natives, but may be found also in Europeans

as shown by the following case: A European medical man went to Burmah from Ceylon for a pleasure trip. On coming back to Ceylon he noticed a roundish, very slightly elevated black spot on the palm of his left hand. This spot slowly increased in size for two months, becoming the size of a dime. A single application of formalin made it disappear, but three months later it reappeared. A second application of formalin cured the condition permanently. From the patch, before treatment, cultures were made and a chladosporium was isolated identical to the fungus found in native cases.

CRYPTOCOCCOSIS EPIDERMICA.

The condition is characterized by the presence on the arms, legs, chest and neck of roundish patches of a dirty yellow-brownish color. They consist of enormous numbers of blastomyces-like fungi of various size, which have not yet been cultivated. I saw a case in this country last year.

Closely allied to this condition are *cryptococcosis alba* and *cryptococcosis rosia*: in the former whitish patches are found on the skin composed of enormous numbers of usually cultivable cryptococcus, saccharomyces, debaryomyces, monilii; in cryptococcosis rosea, which is extremely rare, budding organisms are found which on artificial media produce pink or red colonies.

PINTA.

Pinta is a disease common in Central America and certain parts of South America. It is characterized by patches on the skin of various color, yellow, black, bluish black, and white, leucodermic-like. As I have stated in previous publications the so-called yellow pinta is in all probability tinea flava. (See *Journal of Tropical Medicine*, London, January 1st, 1925.)

TINEA CAPITIS TROPICALIS.

It is interesting to note that in tropical countries ring worm of the scalp as a rule is less frequently met with than in the temperate zone. Certain types of tinea capitis are caused by the same fungi which cause

the condition in temperate climates. Certain types, however, are caused by mycetes which apparently are seldom found outside the tropical belt. I will limit myself to describing briefly the following two types: *Tinea decalvans* and *tinea capitis* due to *T. louisianicum*.

Tinea decalvans.—This condition I described in Ceylon some years ago. Recently it has been found by Ota to be quite common in China. In the first stage of the disease numerous patches are seen on the scalp covered with an enormous number of heaped up white scales. Later the scales disappear, the hair falls off and the patches remain bald permanently. The fungus I found in these cases I thought at first was a variety of *Trichophyton violaceum* of Bodin, but Ota believes that it is a separate species, at least biologically. The description of this fungus (*Trichophyton decalvans*) may be found in previous publications of mine, among which the Gehrman Lectures, etc. It may also be found in Castellani and Chalmers' "Manual of Tropical Medicine," p. 2075. So far I have not found it in New Orleans.

TINEA BARBAE TROPICALIS

Tinea barbae is not very rare in New Orleans. Recently I saw a case from which a fungus was isolated very similar or identical to *T. nodiformans* which was first isolated in Ceylon. In this case my method of injecting ether and a mixture of absolute alcohol and ether in equal parts into the nodules induced a rapid cure.

TINEA UNGUIUM TROPICALIS

Two types can be separated, a type due to *Epidermophyton*, *Trichophyton* and *Endodermophyton* fungi, and a type due to fungi of the genus *Aspergillus* and genus *Penicillium*. Cases of the latter type have been observed in various countries by Brumpton, Ota, Johns and myself.

Tinea capitis due to Trichophyton louisianicum.—A type of trichophytosis not rare in New Orleans is one caused by the fungus which I have called *Trichophyton*

louisianicum. The fungus may attack the scalp and hair as well as occasionally the glabrous regions. So far, I have seen it only in colored children. The lesions are generally superficial. One or several roundish or oval patches denuded of hair are seen on the scalp, the surface is smooth or there may be some pytiriasic squammas, they are not limited as a rule by a raised border, no true "stumps" are seen. The fungus is seldom present in large amount: it may be found at times in scrapings from the patch: it may be present also in the hair in the intrafollicular portion inside or outside or both. When the glabrous parts—usually the neck—are attacked, oval or roundish whitish patches are seen with pityriatic desquamation; an interesting point is that at times a large number of yeast-like organisms are present in addition to the trichophyton fungus, and it is quite possible that the white appearance of certain patches may be due to the presence of the yeast-like fungus; by mycological cultural methods both organisms may be grown; the yeast-like organism is grown much more easily than the trichophyton fungus.

A moist variety caused apparently by the same fungus is also met with; in this variety the patches show thick crusts rather than scales and the condition may be mistaken with a form of seborrhoea on which a pyogenic infection has become engrafted. As this fungus is very little known I may repeat here the description of its cultural characteristics.

Acid glucose agar 4 per cent.—In fully developed cultures three to six weeks old a fairly abundant growth is noted with a central white portion consisting of white duvet springing up from a rather hard mass; the peripheral portion of the growth is yellowish; the submerged portion, viz., the portion growing deep into the medium frequently shows one or two or several spots of reddish, or brownish-reddish color, the reddish color is usually absent in very young cultures. When large tubes are used and the medium is not dry, the growth often shows a beautiful border of a deep yellow-reddish color, the color of the skin of a tangerine.

Acid glucose agar prepared with peptone water instead of broth.—The appearance of the growth is identical with that observed in cultures on glucose agar prepared with broth, but the yellow color is at times much more marked.

Neutral glucose agar 1 or 4 per cent.—Growth less vigorous; central white knob; periphery whitish or yellowish.

Casein Digest agar 3 per cent.—Growth fairly abundant, covered with white duvet—portions of submerged growth may be reddish or yellowish-reddish.

Acid maltose agar 4 per cent (Sabouraud's medium).—Appearance somewhat similar to that noted in glucose agar cultures, but growth less abundant and yellow color much less marked—or may be absent.

Sabouraud's medium (modified).—This medium contains in addition to maltose a small amount of glycerine. The fungus grows well on it and the yellowish color is very evident.

Gelatin agar.—Knobby growth, tending to be almost cerebriform, covered with white duvet—peripheral portion may be yellowish.

Glycerine agar.—The fungus growth profusely; the growth is white with at times a yellowish tinge.

Gelatine.—The fungus slowly liquefies gelatine; usually liquefaction begins on the third or fourth day.

Sugar media.—No gas is produced in any sugar. A slight amount of acidity is occasionally present in levulose and a few other sugars after three weeks incubation.

Microscopical examination of preparation from cultures.—Until recently no "fuseaux" had been found but a few weeks ago they were found in some old cultures. They are elongated, fusiform structures with a number of septa. The apex does not show any hair-like process. Temporarily I have placed the fungus for convenience sake in the genus *Trichophyton*, section *incertae sedis*. With regard to macroscopic features, the fungus must be separated from the following organisms: *Trichophyton sulphureum*, *Microsporum flavescens*, *Trichophyton ochraceum*, *Trichophyton flavum*.

In contrast to *T. sulphureum* there is no speckled appearance and the cultures are not crateriform; moreover in fairly old cultures reddish or brownish-reddish spots are often seen in the submerged growth; with regard to *M. flavescens* described by Horta in Brazil, 1912, it appears it was microscopically a typical microsporum fungus; with regard to macroscopic features, the whole growth including apparently the center was of a yellow

color; *Trichophyton ochraceum* and *Trichophyton flavum* give rise to cerebriform colonies.

PIEDRA

This is a disease found in certain parts of South America and America, principally in Columbia. It is characterized by the presence of small hard nodules on the hair of the scalp. The nodules are composed of large numbers of mycelial spores of fungus belonging to the genus *Trichosporum*.

ASPERGILLOSIS AND PENICILLIOSIS OF THE BEARD

The hairs of the beard and mustache are covered with minute, dark-grayish, or black, or greenish nodules, which on microscopical examination are seen to consist of mycelium and fructifications of an aspergillar or penicilliar type. I saw the first case in Equatorial Africa, in 1902, in an Indian Merchant; later Chalmers and I came across several cases in Ceylon. The simplest treatment consists, of course, in shaving, but if the patient objects to it, turpentine and diluted formalin will be found useful.

TRICHOMYCOSIS AXILLARIS FLAVA, RUBRA AND NIGRA

This condition has been partially known for many years under the term *Lepothrix*, but the various types of it were not differentiated, and nothing definite was known about the etiology, the affection being ascribed to the most diverse germ. Eisner, for instance, considered it to be caused by a diplococcus; Payne, Patterson and Peck incupated various bacilli, including *B. prodigiosus*.

The condition is characterized by the presence, on the hairs of the axillary regions and occasionally the pubes, of small nodular formations which, from my experience, may be yellow or red or black. I therefore differentiated 3 varieties of the condition—*Trichomycosis axillaris flava*, *T. axillaris rubra*, *T. axillaris nigra*. According to my researches, *T. flava* is caused by a fungus of the genus *Xocardia*, which I called *N. tenuis*. The red variety is caused the same fungus plus a red-pigment-producing cocci, which I isolated and cultivated in

various media, and which Chalmers and O'Connell called *Micrococcus Castellani*. Very rarely instead of this coccus a red pigment producing cryptococcus is found: *C. rubrorugosus*. The black variety, *T. nigra*, is caused by the same nocardia (*N. tenuis*) plus a black-pigment-producing coccus, which I isolated and called *N. nigrescens*. Exceptionally instead of the coccus a black pigment producing cryptococcus is present: *C. metaniger*.

It is interesting to note that natives, especially African natives, seem to regard *T. axillaris* with disgust, and readily seek treatment, and Chalmers and O'Connell brought forward the hypothesis that the general custom of shaving the armpits among certain native tribes may have originated in their profound dislike of this complaint.

As regards treatment, I found in Ceylon that 1 per cent formalin lotion applied to the armpits several times a day, and sulphur ointment at night, answered well. In New Orleans *Trichomycosis flava* is quite common; cases of *Trichomycosis rubra* occur; *T. nigra* is very rare.

CONCLUSION.

A number of tropical dermatomycoses occur in New Orleans and Louisiana, some of them being quite common.

DISCUSSION.

Dr. Menage: I hope you all understand all about the mycology of diseases of the skin. Dr. Castellani has made it so plain that nobody can leave this room without feeling that it is as simple as it is interesting. Personally, since the advent of Dr. Castellani here, I feel that I am suffering from a mycology complex. I thought I knew enough skin diseases and could recognize a ring worm of the body but at this moment you might compare my predicament to that of a kindergarten pupil given a telescope by an astronomer and shown the beauties of the milky way. I am indeed fortunate to have only five minutes to discuss his paper.

Among the diseases the general practitioner often sees and which sometimes taxes his patience beyond endurance, are what appear to be ordinary boils. A certain proportion of those refractory cases has been shown by Professor Castellani to

be of a more serious blastomycotic type, offering thereby a means of getting rid of a most troublesome condition to the patient. Many of the generalized infections which we have been labeling as staphylococcal are found to be mycotic in origin.

This type of dermatomycosis which interests us most in New Orleans, and should every medical man in general practice is the Epidermophytosis Inguinale, the old time Dhubie Itch of the Spanish American War. Recently we received a communication from Washington on account of a disabling condition of the hands and feet among the employees of the government. An investigation followed this communication and a report entitled "Mycoses of the hands and feet" in which the writers (C. S. Butler, J. E. Houghton, and G. F. Cooper) report from eighteen to thirty per cent of the men investigated in the various services of the government (Marines, Navy, Hospital corps, etc.) had mycoses of the hands and feet. In New Orleans we have been seeing a great deal of this infection. In one of the public institutions which I serve as dermatologist, my monthly report of the men coming to me with skin diseases, show that from fifteen to twenty-five per cent have diseases of the hands and feet mostly of that type. It would be safe and fair, I believe, if the general practitioner (with no laboratory means at his command) considered seventy-five per cent of all skin diseases of the hands and feet that come to him as parasitic and treated them accordingly.

The rather persistent depigmentation caused by *Tinea flava* shown by the Doctor is very interesting and curious and it occurs to me facetiously that if the Doctor could inoculate cases of chloasma with his *Tinea flava* he may cure some of those poor victims of the gynecologist and dermatologist and claim their everlasting gratitude.

Dr. Castellani (closing): The remarks made by Professor Menage are of great interest.

With regard to the boils, I quite agree with Professor Menage that in certain cases so-called furunculosis is not a staphylococcus infection; it is a cryptococcus infection. True, you find the staphylococcus always present in most of the lesions, but the staphylococcus is a secondary invader, not the true etiological agent, and it seems to me that this is proved by the fact that if potassium iodide be given in a case of staphylococcus furunculosis the patient gets worse, but if you give potassium iodide in a case of furunculosis of mycotic origin, the eruption will disappear.

With regard to the tinea epidermophytica of the toes, I am in complete agreement with Professor Menage. It is a condition of very great practical and, as he said, economical importance. What makes the condition very serious in certain cases in my opinion is not the fungus *per se*; it

is the secondary bacterial infections. It is the streptococcus infection engrafted on the epidermophytic condition which will give the dermatitis which often is found between the toes, sometimes with vesicles. Sometimes it will cause a lymphangitis. Sometimes it will cause a condition which cannot be distinguished from ordinary erysipelas and rarely it may give true streptococcus sepsis. Moreover in patients who have been suffering from epidermophytosis for years, both between the toes and in the scrotal region, and in whom there is a secondary streptococcus infection may present attacks of fever from time to time, streptococcus fever, with an edematous condition of the leg which at first disappears. Then later on the edematous condition remains permanent, then induration of the tissues develops and you have a condition which cannot be differentiated from elephantiasis.

It seems almost impossible that a case of epidermophytosis may turn into a case of elephantiasis, but still, indirectly, through secondary streptococcus infections, a pseudoelephantiasis condition develops distinguishable from true elephantiasis. As a matter of fact, we have a typical case here in New Orleans now.

I should like to call attention to a condition of the epidermophytic origin which is not found in any textbook. I mean pruritus ani and pruritus vulvae of mycetic origin. There are a number of such cases which are caused by fungi. In these cases very often, at least in the beginning, you will find no objective lesions of any kind, perhaps a few scratches. Later on the skin around the anus becomes thickened and eczematoid. It is epidermophytosis of the anal region. These cases never get well unless the same measures are used as for epidermophytosis of the toes. My old sulphur salicylic ointment answers sometimes very well.

REVIEWS

RETICULO-ENDOTHELIAL SYSTEM IN DISEASE.*

RUSSELL C. PIGFORD, M. D.†

NEW ORLEANS.

E. B. Krumbhaar⁽¹⁾ in an address before the New York Academy of Medicine in 1923 stated, "It is convenient and desirable, from a practical point of view, to consider all diseases of the blood, but especially the so-called 'primary anemias' from the dynamic standpoint of the constant interplay of the blood-forming and blood-destroying apparatus (which may be termed the hemolytopietic system) and the adjustment thereof spoken of as the hemotopoietic balance."

"A steadily accumulating mass of evidence is forcing us to recognize that bone marrow, lymph nodes, spleen, liver, and the whole reticulo-endothelial apparatus must be considered as definite a mechanism

for the control of cellular elements of the blood as the digestive or endocrine systems are in their respective spheres." Thus the newer conception of the reticulo-endothelial system would not be limited to that group of cells that is engaged in the destructive processes of the blood, but must also include a consideration of the elements involved in the productive processes.

In the normal individual, there is a constant production within physiological limits, of red blood cells, leukocytes, and platelets by the bone marrow. On the other hand, there is a constant destruction of red blood cells by the reticulo-endothelial cells scattered throughout the various organs of the body. In this destruction of red blood cells the reticulo-endothelial cells, in a manner that is not at present understood, play a part in the production of biliary pigment. Rous and Drury⁽²⁾ have found that the amount of bilirubin present from day to day in the bile yielded by animals with intubated common duct constitutes an immediate, if not entirely accurate index to the amount of blood destruction, whether this be in part the consequences of pathological influences or

*Second paper of the symposium on the Reticulo-Endothelial System, presented at a meeting of the Orleans Parish Medical Society, March 26, 1928.

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merely the result of ordinary corpuscular wear and tear. Thus, a balance is established between the hemopoietic and hemolytic activities and an estimation of the hemolytopoietic balance at a given instant, Schneider⁽³⁾ has referred to as the hemopoietic-hemolytic index.

As stated above, there are physiological limitations of the activities of the hemolytopoietic system. Any deviation from these limitations, whether above or below normal, must be considered pathologic. The pathogenesis is not always as evident as the pathologic picture. For instance, a leukopenia may be present in a given disease, but the manner of production of that leukopenia may be not at all clear. Such a leukopenia may be the result of the paralytic action of toxins on the hemopoietic cells in the bone marrow or it may result from an increased destruction of the circulating leukocytes by the toxins. On the other hand, an increase of any or all of the blood elements in the circulation cannot at a given instant be considered a result of the stimulation of this or these elements by toxins. It is a physiological fact that relatively few of the capillaries are functioning at a given instant and the blood cells are constantly hidden in the closed capillaries. As a result of such a simple mechanism as exercise some of the latent capillaries begin to functionate and a physiological leukocytosis ensues.

The reticulo-endothelial system is credited with a variety of responses to abnormal stimulation. The cells act as scavengers for foreign bodies, such as anthracotic pigments in the lungs. The function of ingestion of bacteria and necrotic material in the body, the formation of proteolytic enzymes and the development of anti-bodies are attributed to this elaborate system. The scope of this paper will purposely not include these phases. Instead, a consideration of the relation of the reticulo-endothelial system to toxic reactions, metabolic disturbances, and blood dyscrasias will be discussed.

METHODS OF EXAMINATION.

I. BLOOD.

Cytological: In the diseases of the reticulo-endothelial system the blood is the most valuable laboratory information we have at present. The color index is of elementary importance in any study of blood dyscrasias. A high color index is indicative of a primary anemia, although a long standing secondary anemia may produce a color index of 1.2 or over. In the blood smear the degree of anemia is roughly estimated by the number of anisocytes, poikilocytes, basophilic stippled cells, erythroblasts and percentage of reticulated (embryonal) cells present. The estimation of the red cell diameters is of importance in differentiating between some of the anemias. Unfortunately, the estimation of the percentage of reticulated red cells has been a neglected field in the study of blood dyscrasias. The technic is very simple, requiring only a few minutes of the examiner's time and often giving invaluable information of prognostic as well as diagnostic importance. The leukocytic picture is not to be neglected. A leukopenia is the rule in primary anemias. A normal leukocytosis is the rule in secondary anemias. However in the anemia of hemorrhage a hyperleukocytosis occurs, and this is roughly proportionate to the severity of the hemorrhage. The three types of polymorphonuclear leukocytes, because of their origin in the bone marrow and their reaction to a quite simple staining phenomenon, are termed granulocytes. The peroxidase stain for the differentiation of these marrow cells and the non-granulocytes is at time of value in the identification of obscure cases of leukemia.

Platelets: The study of the platelets is another somewhat neglected phase of the blood picture. After moderate practice in the study of blood smears one can usually estimate, though in a general way, the number of platelets in the blood. For more accurate study, however, the direct or indirect method of estimation is to be pre-

ferred. The clinical importance of these elements will be referred to later.

Fragility: The resistance of the erythrocytes to hypotonic salt solution is of importance in differentiating between hemolytic and non-hemolytic jaundice. The principle is based upon the ability of the red blood cells to resist dissolution when placed in hypotonic solutions of sodium chloride of graded strengths. Recently a method of studying the fragility of the red blood cells to hypotonic blood serum has been described with the hope that some of the obviously atypical conditions may be explained on this basis. However, this study is as yet of doubtful value. Cholesterol has definite anti-hemolytic properties. In pernicious anemia, Gorham and Meyers⁽⁴⁾ found low cholesterol values. Since the resistance of the red blood cells to hypotonic salt solution is unaltered in some cases of pernicious anemia, it would be interesting to note the relationship of the cholesterol values of the blood to the fragility of the red blood cells. The writer is not cognizant of any such observation.

Bilirubin: Ehrlich found that bilirubin dissolved in chloroform or alcohol and mixed with diazonium salts gave in a neutral medium a reddish, and in an acid medium a bluish color. This reaction he termed the diazo reaction. Hijmans van den Bergh in 1913 first applied this principle to the albuminous fluids, having developed a technic of identification of bilirubin in minute amounts. From his studies he found: first, that bilirubin is normally present in blood serum in a concentration of one to four hundred thousand to one to two hundred and fifty thousand; second, that in cases of jaundice there was an increased intensity of the reaction comparable to the degree of jaundice; third, that in certain types of jaundice the reaction was negative when applied to whole serum, but was positive when applied to serum freed from its proteins by alcoholic precipitation. To the test with whole serum he gave the name, direct, and to the pro-

tein free reaction he gave the name, indirect.

This phenomenon was not popularized for several years, when in 1922 McNee⁽⁵⁾ first recorded in English literature observations made with the test.

Whipple and Hooper⁽⁶⁾ found that bile pigment formation continues after removing the liver, spleen, and intestines from the circulation, and that this bile pigment increased after the administration of a hemoglobin solution into the blood stream.⁽⁷⁾ They suggested that this biliary formation was due to the activity of the endothelial cells lining blood vessels. These observations together with the study of the van den Bergh reaction led McNee⁽⁸⁾ to accept the idea of the important role of the reticulo-endothelial system in formulating a new theory relative to the mechanism of the production of jaundice that more nearly conforms to the clinical and pathological types of icterus. Considerable doubt as to the specificity of the van den Bergh reaction arose when Andrewes⁽⁹⁾ found that in certain cases of uremia showing a hypobilirubinemia the diazo reaction was positive. Nevertheless, Mann *et al.*⁽¹⁰⁾ by a spectrophotometric method was able to confirm the earlier observations on the site of bilirubin formation. The present view regarding the subject of bilirubin formation is that the reticulo-endothelial cells throughout the body play an important role in the formation of bilirubin, that the bilirubin is carried to the liver as an unfinished product, and in passing through the liver cells is changed to a finished bile pigment; that in diseased condition there is an alteration in this function depending upon the type of cell involved in the disease process. For present purposes it may be said that the intensity of the indirect van den Bergh reaction indicates the amount of bilirubin formed by the reticulo-endothelial cells, and this in turn is an index of red blood cell destruction whether normal or pathologically increased. The van den Bergh test, because of its sim-

plicity and its value in a large majority of cases, will continue to be the most valuable clinical procedure for differentiating hemolytic and non-hemolytic jaundice, and for the detection of latent jaundice in the hemolytic anemias.

II. FECES AND URINE.

The feces and urine offer limited opportunity for observations on the clinical features of the reticulo-endothelial system. The presence or absence of bilirubin in the stools is of importance in the detection of complete obstruction to the bile passages and then for a limited time only. Elman and McMaster⁽¹¹⁾ have shown in dogs that five days following complete obstruction of the bile ducts urobilin reappears in small quantities in the stools. This would suggest that in cases of complete obstruction, bile escapes into the intestinal tract by way of the blood stream. In cases of obstructive jaundice, the kidney threshold for bilirubin is low. Therefore, the study of the urine is of material benefit in the early diagnosis of this condition. However, McNee⁽⁸⁾ calls attention to the fact that in latent hemolytic jaundice at least four van den Bergh units of bilirubin must be present in the blood before biliuria is evident. Thus, the van den Bergh reaction is of greater value than the study of the urine in this type of jaundice.

REACTIONS IN INFLAMMATORY DISEASES.

The reticulo-endothelial system responds in different ways to the advent of toxins in the human host. In a general way it may be said that in acute inflammatory processes there is a stimulation beyond physiological limits of the leukocytic elements with a resulting hyperleukocytosis and an increase in the neutrophilic polymorphonuclear cells. This increase is absolute as well as relative. Furthermore, it is noted that the neutrophilic increase is concomitant with a relative or absolute reduction in the eosinophilic polymorphonuclear cells (Simon's septic factor).

In contrast to the hyperleukocytic diseases there is a group of diseases in which

the total leukocytes are strikingly reduced with a diminution in the granulocytic (neutrophilic, eosinophilic and basophilic) elements with a relative if not an absolute increase in the non-granulocytic (mononuclear) cells. The most striking example of this leukopenic response is that of typhoid fever, which has been characterized as primarily a disease of the reticulo-endothelial system. This disease is marked by a leukopenia with an increase of large mononuclears. It will be recalled that the popular conception of the origin of the large mononuclear cells is in the endothelial linings of the vascular system. Histological studies of typhoid fever demonstrate further the proliferation of the large endothelial cells by the finding of the phagocytic cells of Mallory in the capillaries of the liver, spleen, and other organs. In dengue fever and kala azar, a leukopenia with an increase in the large and small mononuclears is seen. In influenza a leukopenia is the rule, while in malaria there is a tendency to a leukopenia with an increase of the large mononuclears. Measles is another disease in which leukopenia is seen. In Rocky Mountain spotted fever a hyperleukocytosis is observed with an increase of the large mononuclears. In this disease the monocytes are frequently the site of phagocytized red blood cells.

In recent years a syndrome has been described in women about the age of forty, marked by an acute onset, with a localized angina of the mucus membranes free from Vincent's organisms, running a four or five day septic course, and terminating fatally, in which the blood picture is striking. There is a progressive leukopenia with a diminution of the granulocytes for which the syndrome is named agranulocytic angina. The possible cause of the disappearance of the polymorphonuclear leukocytes from the circulating blood will not be discussed. It will suffice to note that before death the total leukocyte count has been seen to fall as low as 250.

Leprosy cannot be considered a disease of the reticulo-endothelial system. How-

ever, it is interesting to note that the typical leper cell is an endothelial cell within which are seen large numbers of Hansen's bacilli. These may be demonstrated in sections or in scrapings of the leprosy lesions.

In chronic suppurative conditions the formation of amyloid has been a matter of speculation among pathologists. Mallory⁽¹²⁾ states regarding the pathogenesis that, "It is not a product of degeneration of cells of fibril or something filtered out of the blood stream. Instead it is a deposit in tissues manufactured out of normal constituents of the blood by cell activity." He believes that the fibroblast is involved in the formation of amyloid. On the other hand, Smetana⁽¹³⁾ in a study of the relation of the reticulo-endothelial system to the formation of amyloid found: first, the appearance of amyloid in places where reticulo-endothelial cells are normally present; second, the formation of amyloid early in small solitary patches suggesting its local formation; third, the occurrence of solitary patches of amyloid apparently located within the capillaries of the liver; fourth, the manifold relations between reticulo-endothelial cells marked out by phagocytized ink granules and amyloid; fifth, the impossibility of demonstrating reticulo-endothelial cells in areas forming amyloid; sixth, the delayed appearance of amyloid in animals after blockage of the reticulo-endothelial cells by repeated injection of India ink. These observations strongly suggest a relationship of the reticulo-endothelial system to the formation of amyloid.

The leukocytic phase of malaria has previously been referred to. The fact that a large spleen is always associated with malaria has been a subject of speculation for a possible disturbance of reticulo-endothelial physiology. The enlargement is due, in part, to the great accumulation of endothelial leukocytes filled with red blood cells and blood pigment. The hemolytopoietic balance is disturbed as a result of in-

creased red cell destruction manifested clinically by an anemia of the secondary type, a hemolytic jaundice and a urobilinuria. As convincing evidence of the hemolytic type of jaundice the indirect van den Bergh is positive. Occasionally, however, in chronic malaria Hughes⁽¹⁴⁾ has noted that the direct van den Bergh is biphasic, which would indicate that in addition to a hemolytic jaundice, there is present a toxic process involving the liver cells.

METABOLIC DISEASES.

In disturbances of fat metabolism,^{(15) (16)} the reticulo-endothelial system shows definite evidence of activity. In the lipemia of diabetes mellitus the spleen is swollen and tender, and on section, is found to be clogged with large numbers of endothelial cells containing globules of fat.

Gaucher's disease is now classed by many authorities as a familial metabolic disorder of the lipid elements. In the endothelial cells of the liver and the large spleen in cases of Gaucher's disease are found lipid deposits demonstrable by microchemical methods. The persistent leukopenia is another feature of this type of splenomegaly.

BLOOD DYSCRASIAS.

Pernicious Anemia. Pernicious anemia is a disease essentially of late adult life that follows a variable course, subject to remissions, practically always fatal, and characterized by a lemon yellow skin, enlarged spleen, a megalocytic anemia of a primary type, and a leukopenia. In this disease there is a marked fluctuation in the blood picture from time to time, and this fluctuation is roughly proportional to the subjective phenomena. This is the disease par excellence for following the fluctuations in the hemolytopoietic balance. During the stage of relapse there is observed a progressive anemia with very slight evidence of regeneration as indicated by the paucity of nucleated red cells and reticulocytes in the peripheral blood. Simultaneously with the progressive anemia the fragility of the

red cells is increased and there is increased bile pigment (indirect van den Bergh) in the blood stream, an increase of stercobilin and a urobilinuria. During the period of regeneration, that is, when the hemopoietic phase is active and the hemolytic phenomena are relatively quiescent, large numbers of erythroblasts and reticulated cells appear in the blood, the resistance of the red cells increases, and the van den Bergh reaction approaches normal. In fact, all the features of the disease may disappear and the patient enjoy apparently perfect health for a variable period of time.

Banti's Disease. The large spleen of Banti's disease with the increased number of macrophages and endothelial cells together with increased amount of blood pigment are indicative of a hemolytic process in this disease. The anemia, however, differs from that of pernicious anemia in that it tends to a chlorotic type with a tendency to a microcytosis. Except after severe hemorrhages when there is marked stimulation of the bone marrow, the hemopoietic tissues show relatively little activity as evidenced by the presence in the circulating blood of few erythroblasts and reticulocytes. There is no striking alteration in the resistance of the red blood cells in this disease. The hemolytic nature of splenic anemia is manifested by increased bile pigment in the blood (indirect van den Bergh) and an increase of urobilin in the feces and at times a urobilinuria. It might be said in this connection that after the periportal cirrhosis of the liver has progressed to the stage of liver cell damage, the direct van den Bergh may become positive. A leukopenia is the rule, although hyperleucocytosis may be observed after hemorrhage. Rosenthal⁽¹⁷⁾ divides Banti's disease into two groups according to the platelet count. In one group he finds a thrombocytopenia and in another a thrombocythemia. He believes splenectomy is beneficial in the first group, while in those cases showing an increased platelet count, no improvement is noted.

Hemolytic Jaundice. Hemolytic icterus is manifested by jaundice, splenomegaly, a severe anemia of the hemolytic type and increased fragility of the red blood cells. At certain periods of the disease there is marked similarity to pernicious anemia. In the blood smear of hemolytic jaundice, however, the extreme activity of the bone marrow as reflected in the finding of enormous numbers of erythroblasts and a reticulocytosis of twenty times normal is not seen in any other disease. Furthermore, there is a tendency to a microcytosis in hemolytic jaundice in contradistinction to the megalocytosis of pernicious anemia. The engorged spleen with evidence of increased activity of the reticulo-endothelial cells, that is, the increased number of these cells with large quantities of blood pigment incorporated within the cells suggests a localization within the spleen of pathologic reticulo-endothelial physiology. As confirmatory evidence of this localization process, the relief of symptoms after splenectomy needs only to be mentioned. In pernicious anemia the evidence of blood cell destruction is not limited to the spleen, but is observed in the reticulo-endothelial cells of other organs (Kupffer cells of the liver). This is offered as an explanation of the failure of splenectomy to relieve the symptoms in pernicious anemia.

The resistance of the red blood cells to a hypotonic salt solution is greatly diminished in hemolytic jaundice. The cause of this increased fragility is not at all understood. Since the spleen seems to be the site of the lesion, it has been suggested that the disturbance of resistance results from toxic bodies elaborated by the spleen. One would naturally conclude that removal of the spleen would result in a return to normal of the resistance of the erythrocytes. Contrary to expectation, this occurs in only about fifty per cent of the cases. Failure to return to normal in all of the cases may be a result of a partial acceptance of splenic function or a spread of the pathological lesion to other parts of the reticulo-endothelial system.

Sickle Cell Anemia. A condition closely simulating hemolytic jaundice, but differing from it in a few details is sickle cell anemia. The chief points of similarity are: the apparent familial tendency, the extreme chronicity, the tendency to exacerbation of symptoms with the appearance of a hemolytic jaundice, an increased bilirubin content of the stools with the occurrence of a urobilinuria, the presence during the exacerbation of large numbers of erythroblasts and reticulocytes, and the positive indirect van den Bergh. The differential features are: the occurrence of sickle cell anemia in the negro race (only one exception having been recorded).⁽¹⁸⁾ The spleen of sickle cell anemia is diminished in size. In this connection the writer recalls an autopsy at Charity Hospital, New Orleans, in which extreme difficulty was experienced by the pathologist in identifying splenic tissue. The leukocytes in sickle cell anemia are markedly increased as high a count as 64,000⁽¹⁸⁾ having been reported. The most striking difference is the occurrence in the blood stream of patients with sickle cell anemia of peculiar elongated banana shaped red blood cells. It was the finding of these fusiform cells that suggested the term sickle cell anemia to Herrick.⁽¹⁹⁾ While the fragility of the red cells is constantly increased in hemolytic jaundice, reports on this feature are at variance in sickle cell anemia. In the latter, the hemolytic span varies from normal to a reduced resistance within normal range, to a reduced resistance with an increased range. Generally speaking, it may be said that there is a tendency to increased fragility of the red blood cells in sickle cell anemia.

Splenomegalic Polycythemia (Polycythemia vera). In contrast to the hemolytic diseases, polycythemia vera is a condition primarily of hyperplasia of the bone marrow involving the erythroblastic tissues, resulting in an abnormal production of erythrocytes, both qualitative and quantitative. The spleen is markedly enlarged in this disease. The enlargement is consid-

ered to be a compensatory affair, the splenomegaly resulting from an effort on the part of the spleen to destroy the increased number of red blood cells. The only changes noted in the splenic structure are a general enlargement, with marked engorgement of the blood vessels. The total erythrocytes are markedly increased, at times more than twice normal. The hemoglobin is increased but not in proportion to the red blood cells, resulting in a low color index. That there is a stimulation of the hemolytopoietic system beyond physiological limits is further evidenced by the finding of all types of red blood cell changes in the blood smear. Embryonal forms such as nucleated red cells and reticulocytes are a constant finding during the exacerbations. Polychromatophilia is noted, but the striking staining characteristic of the red blood cells is an achromia. A hyperleukocytosis with the appearance in the blood stream of immature leukocytes accompanies the hypererythrocytosis. In fact leukemic pictures have been described.⁽²⁰⁾

The platelets, as a rule, are unaltered, but occasionally the disease process may also involve this phase of the bone marrow, resulting in an increased platelet count. The fragility of the red cells varies considerably in polycythemia. As a rule, however, there is a tendency to lengthening of the resistance range. It has been suggested by Minot and Buckman⁽²⁰⁾ that this fluctuation is due to the presence of cells of greater age variety than normal.

Increased hemolytic activity is evidenced by the large engorged spleen with an increased quantity of bilirubin in the blood and an increased stercobilin. For the reason that there is an abnormal disturbance of the hemolytopoietic balance, polycythemia vera is classed as a definite disease of the reticulo-endothelial system with the primary pathology localized in the hemopoietic structures.

Idiopathic Thrombocytopenic Purpura. The diseases previously discussed under

the title of blood dyscrasias are those of pathological changes in the reticulo-endothelial system affecting primarily the erythrocytic element. While in essential thrombocytopenia the erythrocytic and at times the leukocytic elements may be involved, nevertheless, this disease is essentially one of disturbed platelet physiology. In all cases there is a marked diminution in the number of circulating platelets, and in about fifty per cent of the cases palpable enlargement of the spleen is noted. These facts immediately suggest a relationship of the spleen to platelets in the pathogenesis of this disease. To confirm such a relationship one need only to refer to the prolific literature, reporting most favorable symptomatic results following splenectomy. What role the spleen plays in the disease is as yet a matter of speculation. Seeliger⁽²¹⁾ in post-mortem examinations of six cases found evidence of degeneration of the megakaryocytes. He suggested that the pathology might be a localized process in the bone marrow. On the other hand, clinical evidence in splenectomized cases suggests very strongly the spleen as the primary site of perverted physiology. If the spleen is the site of increased platelet destruction, one would expect to find a return of the platelets to normal after splenectomy. This does actually take place in many cases, but in some⁽²²⁾ it is only temporary in spite of a disappearance of all symptoms of the disease. From this observation it may be suggested that the clinical picture is not entirely a result of a thrombocytopenia, but is in part due to other factors not yet understood.

The fragility of the red cells and the production of bilirubin are unaltered except in complicated cases.

Leukemias. Polycythemia vera has been referred to as a disease of the reticulo-endothelial system in which there is a hyperplasia of the erythroblastic tissues. Leukemias may be looked upon as hyperplastic diseases of the leukoblastic tissues in which there is thrown into the circulation large numbers of immature leukocytes. In mye-

logenous leukemia the lesion is localized in the bone marrow, while in lymphatic leukemia it is localized in the lymph nodes. Mallory believes the leukemias to be tumors of the leukoblastic tissue. In both myelogenous and lymphatic leukemia, splenomegaly is a part of the picture. The spleen at times reaches enormous proportion in the myelogenous type. No satisfactory explanation for the splenomegaly has been advanced. The fact that few cases are benefitted by splenectomy would exclude the probability that the spleen plays any but a passive part in the disease. In myelogenous leukemia the frequent finding of immature red cells in the blood smear without a marked anemia suggests an involvement of the erythroblastic as well as the leukoblastic tissues.

The chronic forms of myelogenous and lymphatic leukemia do not as a rule offer any difficulty in differentiation. However, there is a form of acute leukemia in which the origin of the cell cannot be determined by ordinary staining methods. The cells seen in this type of leukemia are large, embryonal, mononucleated cells. Ordway and Gorham⁽²³⁾ call attention to the fact that the myeloblasts and myelocytes liberate oxydizing ferments demonstrable by means of the peroxidase stain. By applying this stain to the smears it has been found that the leukocytes of many of the so-called acute lymphatic leukemias, because of the presence in the cells of the oxydizing substance, are granulocytes, therefore generically myeloid cells. This simple staining phenomenon has thus been of considerable benefit in ante-mortem classification of some of the obscure cases, usually referred to as acute lymphatic leukemia.

SUMMARY.

A consideration of the role of the reticulo-endothelial system in disease must be considered as a pathologic alteration of the hemolytopoietic balance.

The various laboratory methods of determining the hemolytopoietic index are briefly discussed. The indirect van den

Bergh reaction is a valuable addition to laboratory procedures in the study of the diseases of the reticulo-endothelial system.

In acute inflammatory diseases a disturbed reticulo-endothelial physiology is manifested chiefly by an alteration in the normal leukocytic element.

In chronic suppurative diseases the reticulo-endothelial system seems to play a part in the formation of amyloid.

The erythrolytopoietic balance is primarily involved in such diseases of the reticulo-endothelial system as pernicious anemia, Banti's disease, hemolytic jaundice, sickle cell anemia and polycythemia vera.

The thrombolytopoietic balance is disturbed in idiopathic purpura hemorrhagica.

The leukemias are placed in the category of reticulo-endothelial diseases because of the pathological alteration of the leukolytopoietic balance.

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Health Work and the Mississippi Flood.—The work of emergency relief and reconstruction in the lower Mississippi basin, which was devastated by floods in the spring and summer of 1927, affords a stirring example of what private organizations and government services can accomplish when they combine to carry out a unified plan of campaign. Twenty thousand square miles had been inundated, 250 persons drowned and 700,000 driven from their homes; the crops on two million acres had been lost. The damage to property was put at more than two hundred million dollars. The American National Red Cross, a voluntary association in spirit and methods although semi-official in its close relations with the Federal Government, took the lead in relief measures. Trained workers were instantly mobilized and supplies sent forward; at the same time an appeal was made to the public for funds. The President appointed the Secretary of Commerce as a special representative in the area. The organizing genius of this official brought into one great common effort the Red Cross, the Army and Navy, the United States Public Health Service and other federal units, State authorities, local officials, the railways, the Federal Farm Loan Board, scores of private societies, and a vast band of voluntary workers. At a meeting in New Orleans in June, 1927, a program was worked out by which the United States Public Health Service, the health departments of seven States which had been affected by the flood, and local county governments were to co-operate in establishing county health organizations in 100 counties of the flooded area. The Rockefeller Foundation agreed to contribute towards this plan, which called for a total of \$1,250,000 over a period of a year and a half. By the end of 1927 eighty-five counties had arranged for such organizations and the Foundation had given \$200,000. A pledge to continue the co-operation through 1928 has been made.—Vincent, George E.: The Rockefeller Foundation, a Review for 1927, New York, 1928, p. 14.

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THE SEMI-CENTENNARY CELEBRATION.

In this number of the Journal there is published the complete account of the Fiftieth Anniversary celebration of the Orleans Parish Medical Society together with the addresses that were delivered at this meeting. The Society was indeed fortunate to have such a splendid list of speakers and to have men so well qualified to speak from personal observation and experience. The first address, a review of medical education in Louisiana by the dean of the medical profession of New Orleans, that grand old man, Dr. E. S. Lewis, is indeed authoritative, as the speaker had

taught for many, many years in New Orleans, in fact from comparative youth up until a few years ago when he resigned on account of age. The early history of the Orleans Parish Medical Society is a splendid resumé in brief of the events which led to the founding of the Society and its subsequent history in its early days. Fully competent to speak as a student of medical chronicles and a notable medical historian, Dr. A. E. Fossier presents a splendid historical sketch of the organization. The charm and the appeal of Dr. G. Farrar Pattons extemporaneous address can not be appreciated as well in the cold printed words, as it was by those who had the good fortune to hear his delightful presentation. The oration of the Honorable T. Semmes Walmsley, with vigor and with power, calls attention to some of the delinquencies of the medical profession, especially in their relationship to public legislation. His statements should be accentuated fully and emphasized forcibly. If the medical profession hopes to maintain the present high standards of medical practice, it can not do it by the efforts of a mere handful of men. It requires the organized, cohesive action of the entire body medical to get behind the existing legislative acts, to work for them, to watch that they are ever borne aloft, and what is of even more importance to see that they are not stultified by the activities of cultists and faddists.

MULTIPLICITY OF MEDICAL MEETINGS.

At the recent meeting of the House of Delegates of the American Medical Association in Minneapolis, numerous resolutions and recommendations were proposed, most of which were voted down as contrary to the purposes and aims of the Association. There was, however, one resolution which it seems worth while to comment upon more than briefly. This resolution referred to the very large number of medical meetings which are held in the larger communities where there are considerable number of hospitals. As a result

of the agitation in the American College of Surgeons these hospitals have felt it necessary to hold at regular intervals staff meetings at which scientific programs were presented. It was felt by the House of Delegates of the Association that these staff meetings did much to detract from the meetings of organized medicine. They are held at frequent intervals; they are not open to the general medical public and they are essentially local. It is felt that members of the staffs of the hospitals, spending considerable number of evenings a month at these meetings, neglect to attend the regular meetings of organized medicine. By their absence they take away an important element of the Society, they weaken scientific programs, and they are not able to enter whole-heartedly into the duties which an active organization requires of its members. In addition to the factor of requiring too much time, it was felt by the delegates that it was not consistent with the purposes of the American Medical Association for its members to be obliged at the virtual command of an organization which comes in contact with only a small fraction of the medical profession to be subservient to the orders issued by this particular organization. Lastly, it was felt that the American Medical Association itself should make a thorough study of hospitals and prepare a list of acceptable hospitals.

PERNICIOUS ANEMIA.

For many years pernicious anemia has been considered entirely a hemolytic disease, a disease in which excessive hemolysis of the red cells is held responsible for the severe anemia. In view of the epoch-making discovery of the effect of liver, and to a lesser extent of kidney, upon the anemia, it will be necessary to discard our older views as to the genesis of this type of anemia. It is very difficult indeed to conceive of hemolysis itself being effected by a food factor. The mere taking by mouth of a particular type of protein should certainly have no effect on a disease which

might be caused by microorganisms or hypothetical toxins in the body which destroy the red cells. It would seem more equitable then to adjudge pernicious anemia as a disease somewhat similar to or related to the so-called deficiency diseases. Liver supplies the element which the individual suffering from pernicious anemia needs. This particular food factor definitely brings about the maturation or ripening of the red cells so that they can come out into the general circulation. If they become capable of doing this or it is rendered possible for them to get in the blood stream the anemia disappears and the classical picture of this pernicious type of blood dyscrasia is gone. One of the important evidences that pernicious anemia was hemolytic in type resides in the fact that there is a very large deposition of iron in some of the internal organs. This could well be present in a type of anemia in which the red cells do not fully ripen, explainable by the fact that these cells are unable to utilize the iron in the body which is deposited in the tissues rather than in the circulating red cells. The clasmotocytic destruction of red cells in the bone marrow, shown by Peabody and Doan to be present in pernicious anemia simply is a result of the feeding of these phagocytes upon the rich pabulum of red cells which were packed in the marrow as in a tight box unable to reach the systemic circulation.

It is a remarkable fact that many of our ideas and conceptions of disease which we have thought in the past to be upon indisputable foundations, have changed materially as the result of one or two pieces of experimental and clinical observation which has escaped investigators in the past. Pernicious anemia seems to be in this category. A new concept of the genesis of this disease will be necessary in the future as the result of the effect of specific treatment upon the course of the malady.

RADIOLOGICAL FRAUDS AND IMPROPER PRACTICES.

The roentgenologist, like the surgeon, has had to contend most strenuously against iniquitous unethical forms of fee-splitting. Masquerading under various disguises, this evil is apparently becoming quite prevalent in the world of the radiologists. The difficulty of combating this deceitful practice lies in the clever camouflage that roentgenologic laboratories are able to employ, especially those not under the immediate control of a physician. The Radiological Society of North America, at its recent meet-

ing in New Orleans, called attention most forcibly to these practices, which it branded improper, unethical and dishonest. In a series of resolutions, the organization opposed vigorously such practices, and stated that any radiologist engaged in improper and unethical practice should be disbarred from membership in the organization. Of particular moment and force was the seventh resolution, which labeled and catalogued a roentgen-ray laboratory as unethical if diagnostic reports, based upon film-readings of technicians without a medical degree, emanate from such a laboratory.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL MEETING. MEDICAL SECTION.

The regular monthly meeting of the medical section of the Charity Hospital Staff was held June 19, 1928, at 8 P. M., Dr. Bethea presiding.

Dr. Otis first presented a young female patient upon which the diagnosis of functional vomiting, cystitis, and herpes labialis had been made. The outstanding features of the case were the recurrent attacks of vomiting, and a certain peculiar swelling of the legs associated with a stomatitis. These complaints had resisted many forms of therapy. One urine analysis showed the presence of $4\frac{1}{2}$ per cent albumin and many pus cells.

Dr. Lyons discussed this case with reference to the marked albuminuria which he thought to be too pronounced to be accounted for by the pyuria. He suggested the possibility of the case being an angioneurotic edema associated with a nephrosis. Dr. Bethea discussed the case with regard to food allergy, mentioning milk especially.

The second case shown by Dr. Otis was an obese young female who had been unable to walk upon her admission to the hospital. Her neurological examination had been entirely negative. She is now having no difficulty in walking, the diagnosis of psychoneurosis being made.

Two very interesting cases were shown by Dr. Giles. The first, a white female 58 years of age, was a case of tumor of the posterior lobe of the pituitary gland. The diagnosis was borne out clearly by the lateral views of the skull demonstrated by Dr. Granger. The woman showed the enlarged massive facial features and the very typical "spade" hands. The therapy of the case had consisted of roentgen-ray applications to the gland with an apparent partial relief of her severe headaches, a lowering of the basal metabolism from +42 to +11, and an alleged improvement in her facial characteristics. Questions asked elicited the facts

that her blood pressure was normal and there were no visual disturbances.

The second case shown by Dr. Giles was a male diabetic being treated with synthalin. The progress of the case was summarized, and it was shown that the diabetes was apparently under control on a full diet without insulin, but with synthalin. This patient had had hypoglycemic reactions following the use of too large doses of the drug through an error. The tendency of the drug to produce a hepatitis was discussed, the case under discussion having a weak diazo reaction indicating some hepatic impairment.

Drs. Lyons and Bethea discussed the case briefly. This was the closing meeting until October.

WILLARD R. WIRTH, M. D.

THE SONIAT MERCY HOSPITAL.

Drs. Mullens, Waters and Rigall were appointed Junior Internes for the year beginning July, 1928.

Dr. Hauser presented several cold specimens with their history and pathology:

(1) A case of hemolytic staphylococcus aureus. Admission diagnosis was mastoiditis. Operated. Blood culture showed the hemolytic staphylococcus. The non-hemolytic is common and recovery is the rule. There is a one hundred per cent mortality with the hemolytic however.

(2) A case of septic thrombo-phlebitis extending as far as the inferior vena cava with no edema of the extremities.

(3) Several specimens of pathological appendicities. (a) Carcinoma of the appendix. (b) Multiple bird shot in the appendix lumen, and (c) Carcinoma of the tissues immediately adjacent to the ilio-cecal valve.

MAURICE CAMPAGNA, M. D., Sec'y.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the past month the Society has held its regular Board Meeting, one Joint Clinical Meeting with the Charity Hospital Staff and one Scientific Meeting.

At the Clinical Meeting cases were presented by the following: Drs. P. A. McIlhenny, E. D. Fenner, Urban Maes, Jerome E. Landry, J. H. Smith, Jr., Alton Ochsner, and A. Henriques.

At the Scientific Meeting held June 25th, the following papers were read and discussed:

Appendicitis in Children.

By.....Dr. Chas. J. Bloom.

Discussed by Drs. Urban Maes, E. Denegre Martin, and John F. Dicks.

The Use of Lipiodol as an aid to diagnosis in Sinus Conditions. Preliminary Report.

By.....Dr. A. I. Weil and Dr. W. F. Henderson.

Discussed by Dr. H. L. Kearney and Dr. L. J. Menville.

During the past month the Society extended an invitation to the American Psychiatric Association, the American Association for the Study of Epilepsy, and the National Association for the Study of Feeble-mindedness, to hold their 1929 convention in New Orleans. This invitation was to be extended through Dr. J. N. Thomas, Superintendent of the Central Louisiana State Hospital.

Dr. H. C. Dilworth was elected to Interne Membership and Dr. Frank J. Beyt and Dr. J. Kelly Stone were elected to Active Membership.

The Library of the Society has received a complete line of publications in the form of reprints and pamphlets of the National Committee for Mental Hygiene. Many of these pamphlets are for the laity, but to medical men they will prove of interest in detailing many features of mental hygiene in childhood particularly, which advice is often sought from him by parents.

TREASURER'S REPORT.

Actual Book Balance, 4-30-28.....	\$1,121.15
Receipts during May.....	1,381.58
	<hr/>
	\$2,502.73
Expenditures	\$1,010.11
	<hr/>
	\$1,492.62
Outstanding checks	129.99
	<hr/>
Bank balance	\$1,622.61

LIBRARIAN'S REPORT.

Thirty-two books have been added to the Library during April. Of these 6 were received by gift, 10 by exchange, 4 by binding and 18 from the New Orleans Medical and Surgical Journal. Note is made of new titles of recent date in the list herewith appended.

Three reference lists have been prepared and added to the files on subjects as follows:

Articles by Calve 1900-20.

Euphyllin.

Sedimentation test.

The cataloging of our pamphlet collection has continued as fast as the daily reference calls would permit 110 being added to our files during May.

The new shelving has been received and constructed, and the subsequent shift into this extra space is in progress.

NEW BOOKS.

Frankel—State aided hospitals in Pennsylvania. 1925.

Emerson—Physical diagnosis. 1928.

Thomas—Asthma. 1928.

Grover—High frequency practice. 1928.

Miller—Safeguarded thyroidectomy. 1928.

Shastid—Outline history of ophthalmology. 1927.

Woldenberg—Prevention of preventable orthopedic defects. 1927.

de Takats—Local anesthesia. 1928.

Amer. Assn. of Med. Certified Milk Conferences. 1927. Milk Commissions.

Balker—Young man and medicine. 1928.

Lynch—Communicable and other diseases in the World War. 1928.

Amer. Surg. Assn.—Transactions. 1927.

May—Diseases of the eye. 1927.

Nord—Etude sur l'influence de quelques derives de l'albumine sur la regulation du sucre du sang. 1926.

Young—Treatment of infections and infectious diseases with mercurochrome-220 soluble. 1925. Stanford University—Bulletin vol. 8. 1924-27.

Rose—Physical diagnosis. 1927.

DeLee—Principles and practice of obstetrics. 1928.

Hare—Use of symptoms in diagnosis. 1928.

Crossen—Gynecology for nurses. 1927.

Chopra—Anthelmintics and their use. 1928.

Schellberg—Mechanics and chemistry of the human body. 1928.

Sante—Lobar pneumonia. 1928.

Dakin—Elements of general zoology. 1927.

Jahreskürse für ärztliche Fortbildung, v. 1, 6-14. 1910, 1915-23.

H. THEODORE SIMON, M. D.,

Secretary.

CELEBRATION OF THE GOLDEN ANNIVERSARY OF THE ORLEANS PARISH MEDICAL SOCIETY.

Monday, May 7, 1928.

Hutchinson Memorial.

Dr. J. B. Guthrie: Ladies and gentlemen, it is a great pleasure to welcome you here in the name of the Orleans Parish Medical Society on our Golden Anniversary. We have lived a long time. It seems a long time to some of us—but it is a wonderful privilege to have been with the Orleans Parish Society for even one-half of these years that we are commemorating. However, it is not my function to recount the history of the Orleans Parish Medical Society. That will be done by far more capable men than I. We are here simply to commemorate this event and to co-ordinate our work with the public, and to bring up to ourselves and to you the events in which the Society has had a part throughout the years since its organization.

We have a few announcements to make. It was my pleasure to be present at a meeting of the State Medical Society's Executive Committee this morning, at which time it was decided to ask the State Medical Society of Mississippi to meet with the Louisiana State Medical Society next spring. The State Society of Mississippi will be invited to share the 50th Jubilee of the Louisiana State Medical Society next year, and we hope the Mississippi Society will be able to accept the invitation.

We will now have the pleasure of hearing some music.

- (a) Musetta—Valse.....La Boheme
(b) Fairy Roses.....Colridge Taylor
Miss May Mares

Dr. Guthrie: I have a telegram from Dr. Oscar Dowling to read:

Dr. J. Burnie Guthrie,

President Orleans Parish Medical Society, New Orleans, La.,
1208 Maison Blanche.

History and tradition present no greater lights than Chaillé, Miles, Bickham, LePlace, DeRoaldes, Kohnke, Formento, Dyer, Feingold, Souchon, Matas, Lewis, Bruns, born teachers and benefactors of mankind. All honor to the Orleans Parish Medical Society for contributions to preventive and curative medicine and surgery. May each passing year find you stronger and better. Regret being absent.

OSCAR DOWLING.

The subject of our next address will be "The Evolution of Medical Teaching in New Orleans." The one who is speaking on this subject needs no introduction to anyone living in this city. He has taught nearly all of us. He has taught some

men I have known who have lived long and useful lives and have passed away—Dr. Ernest S. Lewis.

Dr. Lewis: Members of the Orleans Parish Medical Society, Ladies and Gentlemen, I am very glad to find my name is the first on the program, which will enable me better to enjoy the rest of the proceedings. When I was asked to deliver an address on this anniversary, I experienced some difficulty in selecting a subject which would not be boresome to an audience so largely composed of the fair sex, and which would be in keeping with the address of Dr. Fossier, who is to talk on the beginnings of the Orleans Parish Medical Society, and its gradual development to the present time. I thought it might prove equally as interesting to you were I to give you a brief, cursory outline of conditions that existed at the time I began my medical studies, the changes that have taken place and some of the causes that have contributed to bringing them about, also, their effect on the exercise of the profession.

The subject is a very broad one, and, as I have stated, this address that I have prepared is a superficial outline, otherwise it would have been boresome to the present audience.

(Reads paper, which is published in fore part of Journal.)

Musical selection.

- (a) Tone Picture.....Ferrata
(b) Prelude C minor.....Rachmaninof
Miss Marie Elise Dupuy

Dr. Guthrie: The Society is very fortunate in having as a member a man of well-nigh universal talent. A very few weeks ago the Board of Directors selected this gentlemen to arrange the celebration of our birthday. Everything was left to him to see that the audience would be on tip-toe to come to listen to this celebration. He has had to delve into the archives of the Society and to present a history of the Orleans Parish Medical Society, which had to be both complete and condensed. I have the pleasure to introduce Dr. Albert E. Fossier.

(Presents paper, published in fore part of Journal.)

Musical selection.

- (a) Ave Maria.....Schubert
(b) Spanish Dance.....Sarasate
Adrien Freiche

Dr. Guthrie: About December, on the occasion of a banquet to which we had invited Dr. Matas upon his return from Europe and his election to the Royal College of Surgeons, Dr. Matas reminded us of the coming of this day and it was he who gave the inspiration that prompted us to come to-

gether tonight. Dr. Matas is in Washington, although his name is on the program and we expected to hear from him. Following is a telegram from Dr. Matas:

Dr. A. E. Fossier, Chairman,
8119 Green St., New Orleans, La.

Deeply regret that I am unavoidably detained here too late to participate in the glorious semi-centenary of our beloved Society. Though I cannot be with you in person I am with you in thought at this moment, and at this distance I am joining in the general rejoicing and echoing the cheers that will greet your recital of the Society's fifty years of arduous labor and unsurpassed achievement that have shaped the destinies of the O. P. M. S. along the paths of immortality assured by the well earned success of the past and the certainty of the present we behold a future crowned with glory of another semi-centennial of still greater accomplishment in the service of our profession of our people and of the commonwealth. With affectionate greetings to our assembled fellows and friends, I am yours most faithfully, in devotion to our dear O. P. M. S.

R. MATAS.

Never is there a duty to perform in this Society of ours that some willing hand doesn't take that duty upon himself. Dr. Matas' announcement of his delayed returned came a very short while ago and we called on one of our members who has been with us a long time and who is familiar with the activities of the Society, a man who has devoted himself to the keeping of records. This seems a hard and thankless task to most of us. We feel it requires constant devotion and zeal to keep them straight. This gentleman has been associated with the quarantine system established by Dr. Joseph Holt, mentioned by Dr. Fossier, which was copied the world over. Dr. Holt's work

made it possible for a system to be instituted at the mouth of the river which enabled boats to pass up the river short of the 40-day period, which was up to that time exacted. Dr. G. Farrar Patton has kindly consented to come here tonight.

(Delivers address, published in fore part of Journal.)

Musical selection.

- (a) Les Deux Serenades.....Leoncavello
- (b) CarméDanza
- (c) FlirtationMeyer-Helmund

Paul Jacobs

Dr. Guthrie: One of the most noteworthy questions that is raised for organized medicine to solve is the relation of the doctor to public life, and our Committee has chosen the Hon. T. Semmes Walmsley, a member of our Commission Council, to speak on this subject. There are two names prominent in the history of the State of Louisiana and the City of New Orleans in the last fifty years and those two names are Semmes and Walmsley.

(Delivers address, published in fore part of Journal.)

Dr. Guthrie: I wish to express the thanks of the Society to Mr. Walmsley who came here and took so much trouble in preparing this address and to assure him that we will take steps to enforce these medical requirements.

Musical selection.

- Violin obligato.....Adrien Freiche
- Accompanists:
- Mrs. Mayer Prince Dr. Homer Dupuy
- Refreshments

Citation of Dr. Matas.—The following citation when the degree of Doctor of Science was awarded Dr. Rudolph Matas at the 181st annual commencement of Princeton University so well expresses the appreciation of others outside of New Orleans and Louisiana that it deserves to be preserved in the annals of the Orleans Parish Medical Society.

Doctor of Science.—Rudolph Matas, a graduate in medicine of Tulane University, for forty-three years connected with that university as a teacher of anatomy or Professor

of Surgery, now emeritus. He is particularly distinguished for his researches in the surgical treatment of aneurism. As a surgeon his knowledge, his skill, his courage and his good judgment have won for him one of the highest places in his profession. In the great army of devoted men who go out to attack the many bodily ills that afflict mankind he is one of the leaders, followed cheerfully and with affection by those who know the eminent qualities of his mind and heart.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

The Journal learns with a great deal of pleasure of the appointment of one of the members of the Journal Committee, Dr. Hiram W. Kostmayer, as Professor of Gynecology and head of this department in the Graduate School of Medicine of Tulane University.

The Journal feels that this is a well deserved honor for a man who has labored long and faithfully in the interests of organized medicine. It senses also that the Graduate School made a wise selection of one who by his skill as a surgeon and scientific accomplishments has made himself one of the outstanding gynecologists of the South.

Louisiana State Medical Society was represented at the recent meeting of the American Medical Association at Minneapolis the week of June 11 by Drs. Elizabeth Bass, O. W. Bethea, Ansel M. Caine, Geo. B. Collier, J. A. Danna, L. R. DeBuys, R. C. Lynch, J. H. Musser, J. T. O'Ferrall, E. A. Socola, and Ludo von Meysenbug, of New Orleans; Dr. R. Butler of Springhill; Drs. Guy A. Caldwell, D. A. Huckabay, C. L. LaRue, and J. P. Sanders of Shreveport; Dr. O. E. Denney of Carville, and Dr. Newton L. Sebastian of Ferriday.

Louisiana physicians returned with two honors from this meeting; Dr. Ansel M. Caine achieved a well deserved recognition by being elected President of the Associated Anesthetists of the United States and Canada, and Dr. O. E. Denney was awarded the bronze medal in the Scientific Exhibit for his magnificent exhibit of colored plates of the lesions of leprosy.

TRANSACTIONS OF THE MEETING OF THE SEVENTH DISTRICT MEDICAL SOCIETY, HELD IN JENNINGS.

The Seventh District Medical Society held its Spring Meeting in the American Legion Hut, in Jennings on Thursday, June 14, 1928, at 7:30 P. M. Considering the inclemency of the weather the attendance of 37 members was commendable.

The committee in charge of the banquet and entertainment offered a very delightful musical program and splendid feast. In conjunction with the intensely interesting presentations this proved to make the meeting well worthy of praise.

The motions for the next meeting place were entertained, and Opelousas was granted the privilege of election.

The scientific program consisted of extremely interesting and important subjects, admirably presented by the following very competent men:

Dr. E. D. Fenner, New Orleans, Treatment of Common Fractures; Dr. Chaille Jamison, New Orleans, The Pleura: Remarks and Observations; Dr. C. S. Holbrook, New Orleans, Migraine: Symptoms and Treatment.

The excellent slide demonstrations accompanying the addresses of Drs. Fenner and Jamison served the additional purpose of increasing the interest and value of these presentations.

The presentation of a case of Splenomyelogenous Leukemia by Dr. Crawford of Lake Charles was very enlightening and interesting.

The motion was made that Drs. Fenner, Jamison and Holbrook be made honorary members of the Society, which was unanimously carried.

Our President-elect, Dr. Frank T. Gouaux, was a patient at the Hotel Dieu for several days in June. It was necessary for the doctor to have a slight surgical operation performed, which he stood well and convalescence was uncomplicated.

At the last meeting of the Board of Administrators of the Tulane University of Louisiana, the name of Dr. Henry Daspit was approved for appointment as Dean of the Graduate School of Medicine, effective September 1, 1928.

Dr. Daspit has been connected with the College of Medicine for a number of years; has been a member of the Executive Faculty of the Graduate School of Medicine since its reorganization three years ago, and, as one of the youngest and most active members, he was recommended for this position. He is in every way qualified for the honor conferred, and under his administration continued prosperity for the school is assured.

Dr. Daspit succeeds Dr. E. Denegre Martin, who was chosen Dean at the time of the school's reorganization in 1925. In relinquishing the deanship Dr. Martin is carrying out a policy which he believes for the interest of the institution, and that is the infusion of young blood into the administration of its affairs.

RAPIDES PARISH MEDICAL SOCIETY.

At a recent meeting of this society there was introduced and passed a resolution that the President appoint a committee to present to the society suitable expression of the society's appreciation of the public record of two of its members, viz: Dr. Jno. M. Thomas, Superintendent of the Central Louisiana Hospital for the Insane, and Dr. G. M. G. Stafford, Superintendent of the State Colony and Training School.

Dr. Thomas has been at the head of the Central Louisiana Hospital for the Insane since 1909. The institution has grown from a rather crude beginning, when it housed just four hundred inmates and performed the simple function of detention and care with the mere necessities of life, with no attempt at medical relief, to a modern hospital for those mentally sick, giving scientific care to nearly thirteen hundred insane.

When Dr. Thomas assumed charge of this institution there was no effort to study and classify the cases so that appropriate measures might be taken; there were no staff meetings, and it might be said that there was not a staff, and laboratory facilities were unknown. Today, there stands a modern institution for the care of the insane, erected by the money of the State, it is true, and its management properly supervised by citizens appointed for that purpose, but the whole development of the hospital, its policies, its spirit of care and kindness, have all been inspired by the man who has served as its superintendent for nearly twenty years. During that time, his public records stamps him a kindly man, an efficient man, and, above all, a conscientious public official.

Upon the death of our late member, Dr. Watt Evans, Superintendent of the State Colony and Training School, Dr. G. M. G. Stafford, long a member of this society, was appointed to the place. This institution is but a few years old, the State's care of the feeble minded is a new work in Louisiana, and the work which Dr. Evans started has been carried on ably under its present management; there are few medical men in this or any other State who have been given the problem of the feeble minded serious study, and the State is fortunate now to have the medical men in charge of the work, who are now there. In the short time he has been there, Dr. Stafford has shown a keen interest and kindly sympathy in his work and no man could have made a better record with the limited facilities and funds furnished for the purpose.

Your committee believes the above poorly but truthfully expresses the opinion of the members of this society.

M. CAPPELL,
K. RAND,
Committee.

THE SIXTH DISTRICT MEDICAL SOCIETY.

To the Medical Profession of the Sixth Congressional District—Greetings:

It may not be amiss to state that the Tenth Spring Meeting of this society, which was to have taken place last April in Baton Rouge, was, for obvious reasons, pretermitted to June in deference to the meeting of the State Medical Society.

This meeting's scientific program will consist of a symposium on Asthma and Hay Fever, led by Doctors F. W. Scheppegegrell and N. F. Thiberge of New Orleans, with stereopticon views, followed by a number of other papers, incidental hereto. I would be pleased to receive the name as well as the title of the paper that any of you may care to read (relative to the aforementioned subject matter, of course,) as soon as possible, so that it may be printed in the official program.

At 1 P. M. one of those delicious luncheons for which our hosts are famous.

Firmly believing that a "Woman's Auxiliary" to this society would be of immeasurable assistance, vast benefit, boundless good and unusual interest, it is my purpose and I very much desire to distinguish my term of office as also to blaze the way for other medical societies in the State by organizing and launching such an auxiliary at THIS meeting, and with that end in view may I urge you to bring along the ladies of your immediate family with the suggestion that this feature take place immediately following the luncheon.

This being the Annual Meeting and Election of Officers, may I beseech a full attendance, thus enabling us to live up to our reputation and uphold our rank in the medical world.

If YOU are a member of your Parish Society or in GOOD standing with the State Medical Society, COME even though you have never met with us—COME, we WANT you, we need YOU, and believe me, you will enjoy the meeting and yourself.

Now, Doctor, please memorize the following:

Occasion—Tenth Spring Meeting of the Sixth District Medical Society.

Place—City of Baton Rouge, La.

Location—Our Lady of the Lake Sanitarium.

Day and Date—Wednesday, June 27th, 1928.

Time—9:30 A. M. SHARP.

With expressions of regard and gratitude for the honors conferred on me by the society,

Respectfully,

A. G. MAYLIE, M. D.,
President.

NEW ORLEANS OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY.

The scientific meeting of the New Orleans Ophthalmological and Otolaryngological Society was held at the Eye, Ear, Nose and Throat Hospital on Thursday, May 17, 1928. Dr. Buffington was appointed Chairman of the meeting.

Dr. Joachim presented the following two cases:

Case No. 1. A man with carcinoma of the larynx on whom he did a laryngotomy May, 1920, followed by radium therapy in which there ap-

peared to be no recurrence, although the patient visited him two days ago with a complaint of a cold in the throat associated with hoarseness of three days' duration. One brother died of carcinoma of the larynx, sister died of carcinoma of pelvis, another brother sick with carcinoma of the stomach. On inspection of the larynx a whitish gray band is seen crossing the anterior commissure of the larynx with slight pedema of the arytenoids and partial fixation. A scar in the midline of the neck is seen on inspection, the result of the external laryngotomy.

Case No. 2. A man, aged 46 years, who five years ago appeared for treatment for a carcinoma of the base of tongue size of thumb after being reported by a surgeon as being inoperable. Applications of radium needles and roentgen therapy was given for several months with only softening of the tumor. He was sent to the physician who was treating him in Meridian, Miss., who continued the roentgen-ray and radium therapy, and today he is preaching to his congregation and feeling well.

Dr. Allen showed a patient with tuberculosis of the uveal tract which simulated interstitial keratitis, which had been under treatment and observation twelve months, in whom the vision improved from 20:200V to 20:50V and the opacities of the cornea disappeared, and the two exudative masses of the vitreous shrunk considerably. The Wasserman was negative. Patient become worse in the beginning under anti-luetic treatment. In the discussion the tuberculin test and tuberculin therapy were suggested.

Dr. Brown presented two patients with acute glaucoma improved by means of a new operation in which he describes the technique as follows: The conjunctiva is first anesthetized either with holocain or cocain. The bulbar conjunctiva is grasped with a fixation forcep at a point 6mm. from the corneo-scleral limbus either in the inner or outer canthus. A hypodermic needle is inserted with its point directed toward the limbus and a solution of novocaine, 2 per cent, and adrenaline chloride, 3 minims, to the syringe full are injected so as to create a bleb. A Ziegler knife needle with its blade held upon the flat is inserted within the center of the bleb and carried sub-conjunctively to a point 1mm. anterior to the limbus the sclera is perforated and the anterior chamber is entered. The knife is now turned so that its cutting edge is in contact with the iris fibres. The iris is divided at its root. The knife is then turned upon the flat surface and removed. The advantages are: to furnish immediate relief from pain, to diminish the intra-ocular tension, to prevent permanent blindness from increased tension, to keep the patient quiet until a more permanent treatment can be prescribed.

Dr. Hume presented a case of herpes zoster oticus from involvement of the geniculate ganglion because of its rarity. The child, aged 6 years, complained of severe pain over the right mastoid for five days, followed by a sudden paralysis of the facial nerve, with no changes of taste or involvement of the nerves of salivation. The herpetic lesions involved the auditory canal cavum chonchea with post-auricular glandular enlargement. It was of interest to note the absence of involvement of the chorda tympani nerve and the sympathetic fibres to the salivary glands, and in the discussion a thorough anatomical description of the geniculate ganglion and the fibre entering into its formation was given so as to explain this phenomenon.

Dr. Perdue presented a case of optic atrophy in a man with general paresis, a negative Argyll-Robertson pupil, almost complete contraction of peripheral fields for all colors, a visual acuity of 20:15 V., and unable to see large objects such as large buildings. This strange visual defect was accounted for by a few of the central fibres of the optic nerve in the maculo-papular bundle not being affected and with a small area of central vision the size of a dime remaining. In the discussion, the question of the etiology of the optic was brought out, but the cause was not decided as to whether the atrophy was due to the lues or the arsenical therapy.

Dr. Allgeyer presented a case of persistent recurrent iritis of nine years' duration with infection of the prostate previously treated by several ophthalmologists. Teeth, tonsils, sinuses, and other foci of infection were negative. No tuberculine test was made. Patient recovered after three doses of diphtheria antitoxin. There was some discussion as to the possibility of the case being tuberculous, although it was self-evident that after the injections of the foreign protein in which the reticulo-endothelial system was brought into play. It resulted in the marked improvement, which further confirmed the prostate as the focus of infection producing the iritis.

WILLIAM A. WAGNER,
Secretary-Treasurer.

NEW SOCIETY.

At a comparatively recent meeting, the New Orleans Gastro-Enterological Society was organized. The following officers were elected: Dr. Sidney K. Simon, president; Dr. J. A. Storck, vice-president; Dr. A. L. Levin, secretary-treasurer. The object of this society shall be the promotion of the study of normal and pathological conditions of the digestive tract, and its allied organs, as, likewise, nutrition and metabolism.

INTERSTATE POST-GRADUATE ASSOCIATION WILL MEET IN ATLANTA.

For the first time in the South there will be held a medical association whose procedure is unique and of remarkable interest.

The Interstate Post-Graduate Medical Association of North America will meet in Atlanta, Ga., October 12th to 19th, inclusive. This association in 1926 met in Cleveland, Ohio, where nearly 5,000 practicing physicians were registered. At

the Kansas City meeting last October 5,200 were registered.

Those who come to this remarkable sort of medical meeting will really be given a post-graduate course by the leading medical men of this country and abroad. The daily meetings are held from 7 A. M. to 1 P. M., from 2 to 5 P. M. and from 8 to 10 P. M. Every one who has attended these meetings has been amazed by the magnitude of the work done, by its quality, by the number of distinguished guest and by the remarkable interest aroused.

MEDICAL WRITING.

In this connection may I remind you that, whatever work we may do, either clinical or investigative, it will do little general good and will lose much or almost all of its effect unless the noteworthy part of it is promptly and well reported in the medical press, which itself indeed cannot grow and prosper unless the profession gives it the material by which it can live and grow. We Southerners have always been too loath to go into print and have hence woefully sinned in not putting on record the glorious history of our ancestors and our section and have let others too often run off with our laurels. And we seem to be just as backward in reporting our medical work. Certainly until we develop the habit, as our Northern brothers so wisely have, of thus giving to the public and the future the results of our studies, they will remain almost useless to our profession, and the world will not know what we are capable of or realize

the good work that is being done South of the Mason and Dixon line.

Let then every one of us, resolve not indeed to get that sad disease, the furor scribendi, which tempts a man to vomit forth incessantly over a suffering public the undigested results of careless observations and poor thinking just for the sake of being in print, but to force ourselves to observe and record so accurately the results of our work that we shall have material of real value which we shall be careful to report fully in the journals, and which shall be not only a credit to us, but an asset to our section and which will enable the medical world to see what the sons of the South are doing for the advancement of our science. In the last analysis, it depends upon the interest and energy of Southern physicians to put over these things which I have suggested, and I leave the matter in your hands, feeling sure that such a cause cannot fail to elicit your enthusiastic interest and your untiring and persistent support.—Minor, C. L.: South. M. J., 18:1, 1925.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

The regular quarterly meeting of the North-east Mississippi Thirteen Counties Medical Society was held at Houston, Miss., June 19, 1928, when the following program was presented:

1. Angina Pectoris, an Echo, Dr. G. S. Bryan, Amory.
2. A paper, Dr. S. H. Hairston, Meridian.
3. Urinary Obstructions, Dr. L. B. Morris, Macon.
4. Early Diagnosis of Pulmonary Tuberculosis, Dr. W. A. Toomer, Tupelo.
5. Roentgen-ray and Radium Therapy, Dr. J. R. Williams, Houston.

THE EX-PRESIDENTS CLUB.

One of the most important incidents of the State Association convention is the meeting of the Ex-Presidents. There are now twenty-five living Ex-Presidents, of whom fifteen attended the Meridian meeting. One, Dr. S. W. Johnston, was called away on business. The following attended the club dinner: P. W. Rowland, W. W. Crawford, D. W. Jones, D. J. Williams, J. S. Ullman, I. W. Cooper, T. M. Dye, F. J. Underwood, J. W. Barksdale, Henry Boswell, W. A. Dearman, G. S. Bryan, T. E. Ross, John Darrington. The names are given in order of "age" of service.

Dr. Cooper was the host of the Club, and served an excellent dinner at the Wiedman. The Club was called to order by the Secretary, Dr. Jones, who read the list of Ex-Presidents. Dr. Rowland, being the "oldest" member in point of service, was asked to preside. He had the Club to stand a moment in silent reverence to the memory of our deceased brother, Dr. J. M. Buchanan, who died since the last meeting of the Club. Dr. Cooper then gave a short sketch of the official life of Dr. Buchanan, and paid a beautiful tribute to his long life of service in the Association.

The Secretary read a letter from Dr. J. W. Young, the oldest living Ex-President, expressing his regrets over his inability to attend the meeting. The veteran doctor has recently suffered a stroke of paralysis, and is confined to his bed. The Club instructed the Secretary to send a telegram of love and sympathy to Dr. Young. (Later a similar telegram was sent by the Association.)

By request, Dr. Rowland gave a short sketch of his connection with the Association. He joined the Association at Meridian forty-five years ago, and has missed only two meetings since. He also

joined the Southern Medical Association when it was organized and has missed but few of their meetings. He is also a member of the A. M. A. for many years, and has attended several of their meetings.

At this point, the secretary called attention to the fact, by contrast with this wonderful record of loyalty, that several of the Ex-Presidents had attended but few meetings since their terms as Presidents expired. Dr. Barksdale took occasion to give a severe castigation to those officials who seemed to appreciate this honor so lightly, and made a beautiful talk on the value of the influence which the Ex-Presidents of this Association might exert on the younger members, and thus exalt and honor the office of President.

Dr. Crawford, as the next oldest in point of service, was then called upon and gave many reminiscences of some of the men who were the leaders when he served as President. Dr. Darrington, the youngest member, was then called upon and expressed his appreciation of the honor of being a member of this Club, and declared he would do everything in his power to uphold the dignity of the high office in which he had just served.

Dr. Rowland, who has attended over forty meetings of this Association, here issued a challenge to the members of this Club to meet him each year for the next ten years, which challenge was accepted with enthusiasm, and the club adjourned.

D. W. JONES,
Secretary.

The regular monthly meeting of the Isaquena-Sharkey-Warren Counties Medical Society was held June 12th in Vicksburg. The program consisted of the following:

1. Certain Lesions of the Cervix Uteri and Their Treatment, Dr. W. H. Parsons.
2. Sinus Disease in its Relation to General Surgery, Dr. G. M. Street.

This society has an unusually efficient secretary. His notices are always worth while. Recently he has adopted the plan of carrying some very pithy extracts on the back of his letters and circulars. Here are two from his last letter. Perhaps some of the other secretaries might want to adopt this plan or something like it.

Dr. E. H. Jones—"Ethical Advertising. The Code of Ethics states most forcibly that no physician shall cause to be published, or even inspire,

an article laudatory to himself. All of us will readily and heartily agree to this, but would not a form of advertising that would react to the benefit of the whole profession be entirely ethical? Many years ago the banks were extremely dignified in their advertising. At the same time large and impressive advertisements of "get-rich-quick" companies fleeced the public out of millions of dollars. The banks have since changed their policy * * * by educating the public, have performed valuable service, teaching them how to take care of their money. * * * Might we not be furnishing our ideal of service to mankind if, through ethical advertising, we attempted to better educate the public how to conserve health and to avoid charletans, quacks, and patent medicines?"

PUBLIC HEALTH DEPARTMENT ATTENTION!

Colored Customer: "Ah, want a quote of sanctified milk."

Storekeeper: "What you-all mean is pacified milk."

Customer: "Look heah, small one, when Ah needs inflammation, Ah'll specify."—Gateway to Health.

The State Board of Health in its weekly health suggestions has lately been devoting its attention to the fight against cancer. We should like to invite your attention to two of these that are particularly good.

"THE FAMILY DOCTOR IN CANCER."

"The family doctor is the key man in the control of cancer.

"It is to him that a person should go for diagnosis and treatment.

"If the family physician is not certain of the diagnosis, he should not wait, but refer the patient to some other physician or to a hospital or clinic where special facilities exist for the examinations which are required.

"It is no reflection upon the family physician when he cannot himself make a diagnosis in cancer, for the disease takes so many forms and affects people in so many ways that it is sometimes impossible, even with the best equipment, skill, and experience, to be certain of the trouble. There is an old saying and a true one to the effect that the more simple the diagnosis the more fatal the case. The reason for this lies in the fact that advanced cases of cancer present symptoms which are unmistakable, whereas newly formed cancers in certain locations may present few or no symptoms.

"The family doctor in cancer should be the patient's guide, philosopher, and friend. He is familiar with all the resources in his region of the country which can be turned to the advantage of his patients. He should be suspicious of cancer upon the slightest evidence, and he should be firm in the instruction he gives as to treatment. Being a practitioner of medicine and not a surgeon, he may not be able to perform the operation, if one is required, but he should know the qualifications of those who can do so with the greatest skill. He should be aware of the pitfalls which lie in the field of quackery, and be able to guide his patients away from them."

"DELAYS ARE FATAL IN CANCER."

"It has been well said that every cancer is at first a miniature tumor and at that time but little more difficult to cure than a splinter or the sting of an insect.

"If a little cancer was as painful as a sting, many people would go promptly to a physician, and so be made well. But at first there is no pain or inconvenience. The symptoms develop gradually. Suspicion is not aroused that there is anything much the matter.

"On the theory that the trouble is trifling and will disappear if left alone, the patient delays calling in medical help. It is surprising to find how many persons have long been aware that something was wrong with them before they have gone to a physician about it. But every day counts. When at last something has to be done, it is often too late.

"It is desirable to treat all diseases in their early stages, but in no affection is it more necessary than in cancer. The danger is like that of a fire. At first there is but a spark which can readily be extinguished. As the flames spread, the fire becomes more and more unmanageable. At last a conflagration develops and extinction is no longer within human power.

"What should be done when a person thinks he or she has a cancer is well illustrated by the case of an old lady who is now reaching a ripe old age in New England. Many years ago her suspicion became aroused that she had cancer. Within an hour she was at the hospital demanding an examination. The next day she was operated upon for cancer of the breast. She has been well satisfied with the results and has explained to hundreds of women that cancer can be cured if taken in time."

PREVENTION AND CURE OF TUBERCULOSIS

The Appendix to the Congressional Record of May 23, 1928, pages 9974-8 contains a paper carrying the above title. This was presented by

Senator Earle B. Mayfield of Texas with the request that it be printed in the Record. "There being no objection, the paper was ordered to be printed." It does not appear in this Record how the Senator is qualified to pass on the worth of such a paper.

It may be interesting to quote a few gems from this paper.

"DEFINITION

"TUBERCULOSIS IS A SLOW DECAY OF VITALITY.

"That is to say, a slow and continuous decay of the vital functions—respiration, circulation, nutrition, and assimilation—a disease in which the decay of the body exceeds the growth or repair.

"It is not hereditary or contagious; no child was ever born with tuberculosis, but the parents may hand down to their progeny the predisposition or tendency to contract the disease on exposure to certain conditions of environment.

"CAUSES

"There are four principal causes, all of which are capable of being removed; all are acquired, not inherited. And here it may be laid down as an axiom that if the cause of a disease can not be found and wholly or partially removed, no permanent cure can be made, the disease will prevail in spite of everything that can be done.

"FIRST CAUSE.

"Neglected or badly treated cases of pneumonia or bronchitis very frequently degenerate into tuberculosis, and the number of such cases is legion.

"SECOND CAUSE

"Vaccination or inoculation of the body with animal matter or poisons (ptomaines) which impair wholly or partially the function of the lymphatic glands whose function is to take up the waste and dead matter and eliminate it from the system.

"THIRD CAUSE.

"A deficiency of iron in the blood. Such persons are pale, anemic, weak, flat chest, soft muscles, insufficient lung expansion, easily fatigued, lack endurance, etc. Iron is absolutely necessary for our very existence. We receive it in our food, which can never be too rich in that metal. A person can never have too much iron in his blood; it maintains health and strength.

"FOURTH CAUSE.

"The use and abuse of alcohol in any form has been a prolific cause of tuberculosis, especially among the aboriginal inhabitants, the Indians. Alcohol has a strong affinity for water, it dries up the brain, and nerves, causes sclerosis of the liver, jaundice, dyspepsia, and all the disastrous results that flow from them, and very frequently terminates in tuberculosis.

"CHEMICAL ANALYSIS OF THE 'BACILLI'.

"Put a quantity of the dried sputum prepared, as already described, into a suitable glass vessel and pour on 5 or 6 ounces of boiled distilled water acidulated with nitric acid in order to insure the decomposition of any carbonates that may be present and carefully filter. The filtrate—the liquid which passes through—contains in solution all the sulphates, chlorides, phosphates, and nitrates of the five metals which enter in the composition of the human body—viz, potassium, calcium, sodium, magnesium, and iron—and the dark or black substance on the filter is tuberculin, the organic portion of the heteroplasm.

"To the filtrate add carefully drop by drop, stirring with a glass rod, a solution of barium nitrate; a white precipitate of barium sulphate will be thrown down characteristic of sulphur. Filter and set it aside for subsequent examination if deemed necessary. The filtrate is now free from all sulphates. The next step is the removal of the calcium which would interfere with the subsequent examination for magnesium; therefore add drop by drop, stirring always with a glass rod, a strong solution of oxalic acid, which will throw down a white precipitate of oxalate of calcium (lime), which filter off as before. The filtrate now contains the salts of four metals—potassium, sodium, magnesium, and iron.

"Now add a solution of silver nitrate; a pale yellow or dirty white precipitate of the chloride and phosphate of silver will be thrown down, and to this add strong nitric acid, which will dissolve the phosphate but not the chloride. Remove the precipitate by filtration as before, dry it and expose it to sunlight, when it will turn black, highly characteristic of chlorine. The filtrate now contains only phosphates and nitrates. Now add more nitrate of silver, when a yellow precipitate of the orthophosphate of silver characteristic of phosphorus will be thrown down, which remove by filtration as before.

"The sulphates, chlorides, and phosphates have now been decomposed and nitrates remain in their place; calcium has been removed and sulphur, chlorine, and phosphorus shown in the precipitates which can now be dried, weighed, and estimated in the usual way if a quantitative analysis is required.

"The filtrate—now a solution of nitrates—is now to be evaporated to a dryness and heated to redness or as long as nitrous fumes are given off, when there will remain the oxides of the four metals—potassium, sodium, magnesium, and iron. The first two are soluble in water, the other two are not. Dissolve in distilled water and separate by filtering. The filtrate now contains only potassium and sodium hydrates. Wash off the mixture of magnesium and iron hydrates on the filter

with sufficient nitric acid to dissolve them, which reduces them again to nitrates, divide the solution into two equal parts, to one add ferrocyanide of potassium. A white precipitate falls and rapidly becomes blue by the absorption of oxygen of the air, intensely characteristic of iron. To the other add chloride of ammonium, aqua ammonia, and phosphate of sodium; a white precipitate falls off the double phosphate of magnesium and ammonium having the composition of $MgN H_4 PO_4$ —highly characteristic of magnesium. There is no direct test for this metal, but only by forming double salts as above.

"To the balance of the filtrate which now contains only potassium and sodium hydrates, add a few drops of hydrochloric acid, thus converting them into chlorides. Now add a drop or two of the perchloride of platinum, a yellow precipitate of the double chloride of platinum and potassium having the composition of $PtCl_4 2KCl$ will be produced characteristic of potassium.

"There now remains in the filtrate only chloride of sodium—common salt—for the sodium, of which there is no chemical test or reagent. A drop of the solution imparts an intensely yellow color to the flame of an alcoholic lamp, distinctly characteristic of his metal, and the spectroscope gives the distinctive yellow line which distinguishes this metal from all others.

"Here ends the chemical analysis of these minute crystals of the salts which enter into the composition of the human body—the first and the only one ever made or on record in any country in the world.

"These crystals of inorganic matter, erroneously believed to be animacula, that is, living microscopic germs consuming and gnawing at the very vitals of the unfortunate victims, have caused an incalculable amount of trouble and distress to millions of our people, and as a result of which very many of them fill premature graves."

This paper was written by Dr. John Morrison of San Antonio, Texas. The following is a letter from the American Medical Association that will throw further light on the worthy:

"Dear Dr. Ullman:

"Doubtless the Dr. J. Morrison of San Antonio, referred to in your letter of June 4, is Joseph Morrison, who was born in 1848, graduated by the University of Toronto Faculty of Medicine in 1872 and licensed to practice in the District of Columbia in 1896. So far as we know, Morrison is not licensed to practice elsewhere in the United States, even in Texas, where he now resides. Morrison's name has not appeared in the American

Medical Directory for many years, because, for a long time, he dropped out of sight.

"It would appear that Morrison is either one of these wrong-headed individuals who, on general principles, is opposed to the established order, whether it be science or religion, or who is in his dotage and riding a fad. About two years ago Morrison was boosting what is essentially an electric nostrum, namely: 'Echinacea'.

"Information in our files shows that Morrison is an anti-germ and anti-vaccination faddist. It seems that some time ago he published a book entitled 'Tuberculosis—Its Causes, Nature, Prevention and Cure,' with the subtitle, 'The Death Blow to the Germ Theory—A Chemical Analysis of the so-called "germs"'. The dangers of vaccination exposed.' In view of this, we were not surprised to learn some time ago that Morrison is vice-president to the 'American Liberty League.' This, as you probably know, is a preposterous organization made up of quacks, near-quacks and faddists, whose particular bugaboo is vaccination. We enclose an article on the 'league', which you may find of interest in this connection.

"Very sincerely yours,

AMERICAN MEDICAL ASSOCIATION.

President Frizell announces the following committee appointments:

STANDING COMMITTEES.

Public Policy and Legislative—D. W. Jones.
Medical Education—P. W. Rowland, T. E. Ross, Sr., G. E. Adkins.

To attend State Teachers' Association—Henry Boswell, John C. Culley, F. J. Underwood.

On Publication—J. S. Ullman, B. S. Guyton, T. M. Dye.

On Scientific Work—L. S. Lippincott, W. H. Anderson, T. M. Dye.

On Necrology—W. G. Gill, W. L. Little, M. W. Robertson.

On Hospitals—O. N. Arrington, E. F. Howard, S. H. Hairston.

CHAIRMEN OF SECTIONS.

Medicine—W. A. Dearman.

Surgery—W. W. Crawford.

Hygiene—C. C. Applewhite.

Eye, Ear, Nose & Throat—E. Leroy Wilkins.

TRI-COUNTY NEWS.

The Tri-County held its second quarterly meeting of the year and its first under its recently issued charter, which was granted since the society now embraces the counties of Walthall and Lawrence.

The society met in Hazlehurst with a very good attendance.

Dr. Chas. L. Eshleman of New Orleans, the guest of honor, presented a very interesting paper on Pernicious Anemia, giving case reports of two years, standing both from private and Touro records, showing the various blood pictures, with and without the liver diet. Lantern slides greatly increased the interest.

Dr. O. N. Arrington reported the meeting of the State Medical Association to the local members with comments on its program and good fellowship.

Dr. L. W. Brock of McComb presented a paper on Broncho-Pneumonia in Measles.

Dr. W. H. Frizell, the recently elected President of the State Association expressed his appreciation of his promotion to this high office and spoke of some of the policies of his administration.

The society adjourned to meet September 11, in Brookhaven.

Dr. W. W. Weathersby of Fair River, Lincoln County, Mississippi was found dead in his pecan grove near his residence on May 19, 1928. It is presumed that he succumbed to a heart attack as he had suffered from some form of cardiac trouble for many years.

He was born in Lawrence County, Mississippi, May 19, 1868. He was a son of the late Dr. William Weathersby. He practiced for a while in McComb and had served as surgeon to different saw-mills in his county, but for several years past he had retired from active practice.

Dr. J. H. Johnson is still in very poor health due to a weak right heart with hypertension.

STATESMEN AND MEDICINE

In the above section of the Journal will be found quotations from a most remarkable paper which appeared in a recent number of the Congressional Record. This gives rise to certain reflections as to the attitude of "statesmen" toward public health and medicine. Senator Mayfield is not the first to espouse the cause of some crank or charlatan in Congress. Most of us remember very well when Congress instructed the United States Public Health Service to undertake an unnecessary investigation of Freidman's so-called turtle serum.

The higher type of physician has long questioned the wisdom, the necessity, or the advisability of upsetting the management of our eleemosynary institutions every time a new governor comes into office. It is a sad commentary on our civilization that institu-

tions for the lame, the halt, the blind, the insane, and the suffering should be considered as nothing more than a means of paying off minor political obligations. This state of affairs is not a new thing nor is it confined to any one political faction or to any particular State.

In this connection we would call attention to the fact that Dr. Oscar Dowling is recognized not only in Mississippi, geographically the sister State of Louisiana, but throughout the whole United States, as one of the outstanding figures in Public Health work. We do know that in the past twenty-five years the State Board of Health of Louisiana has been brought up to a standard equal to that of any in the United States. We cannot believe that the medical profession would have supported Dr. Dowling so solidly during all of these years had there been any question as to his honesty and efficiency.—J. S. U.

BOOK REVIEWS

Reflections: A Book of Poems: By James Thomas Nix, M. D., LL. D. New Orleans, Walter Neale. 1928.

Members of our profession have distinguished themselves in the fields of art and literature. Aside from their active and self-sacrificial work in human salvage, these gifted ones have, as an "entr'acte," cultivated the Muses and enriched the world with artistic creations. But, when "one of our own" leaves the beaten paths of daily routine to climb the heights of Parnassus, it is time to pause and take notice.

All real art is largely self-expression. Our "Doctor Poet" could not escape the myriad influences and human contacts of his calling. Thus it is we find a personal note in these "Reflections." And therein lies the special charm. Such themes as "Your Doctor; My Patients; When Doctors Disagree; King of Sleep; Cries; Death;" are tintured with the Aesculapian outlook on life. Interweaving this whole collection of verses is an all-embracing sympathy, deep-souled pity, kindly humor, the love of suffering humankind.

"The Doctor calls
To nurse near by;
Unmask her face,
It's a boy!"

Here is serio-comic obstetric experience from "Cries," a startling, realistic bit of verse. In "Doctors Disagree," there is well-deserved banter at what we know to be pitifully true. One of the thrusts we quote:

"When I was fat, I should dry out,
When I was thin, I must get stout,
I know great men will disagree—
But, what a mess they've made of me."

Only a scientific mind could with poetic quality, and yet not transcending the truth, essay this definition of life:

"Though only a little protoplasm,
A jelly-like single cell,
Alive and moving, how and why?
'Tis only God can tell."

In the "River of Tears" we find the matter and form of genuine poetry. There is sombre truth in these selected stanzas:

"So tears were created by God, I know,
That burdened hearts might overflow,
They wash away all cares and grief,
And bring to every one relief."

With the keen appreciation of a physician who knows the potency of sleep, in "The King of Sleep" there is a brilliant display of imagination,

yet, the whole is rock-ribbed with the healing art's background.

"Science found my hiding place
And to the world revealed,
They found me in the poppy plant.

* * * * *

They make me in a tablet form,
Or shape me to a pill,
Again I'm in a glass syringe,
They do just what they will."

If we could usurp journal space we would forbear from disjoining some of these real poetic utterances. The reviewer is limited to culling what impresses him as examples of genuinely good verse. Many excellent lyrics abound in this volume for the delectation of those who love the lilt and cadences of poetry. Dr. Nix, the poet engrafted upon the doctor, gets away when he chooses from the medical environment, and with larger and intenser vision of life, attunes his lyre to sing of themes forever new, such as "Love, The Sun, Hearts, Hope, Faith," and kindred inspiring subjects. With a natural gift for rhyme and rhythm he runs the gamut of descriptive and narrative poetry, the quartrain, the lyric, and sonnet.

Surely, the talent, versatility, and idealism, displayed by the author of "Reflections," merits the unfeigned admiration, sincere praise, and heartiest congratulations of his confreres throughout the Pelican State.

HOMER DUPUY, M. D.

Diabetes: Its Treatment by Insulin and Diet: A Handbook for the Patient: By Orlando H. Petty, A. M., M. D., F. A. C. P. Illus. 4th ed. Philadelphia, F. A. Davis Company. 1928. pp. 152.

One of the few fighters in the great war awarded the Congressional Medal of Honor given by Congress for exceptional bravery in battle and one of the few medical men who has ever held this honor, Dr. Petty has shown his bravery in civil life as well as in war by adding to the long list still another little handbook on diabetes for the patient. However, in going over the book, noting how carefully it has been prepared, how much real and valuable information it contains and how well all the salient features of diabetes are presented in a manner which the tyro is thoroughly able to understand, one is able to appreciate the book to such an extent that the wish arises that there might be a somewhat similar honor which could be awarded the author by the medical profession for exceptional medical accomplishment as well as the one for bravery.

J. H. MUSSER, M. D.

Diagnosis and Treatment of Diseases of the Lungs: By Frank E. Tylecote, M. D., D. P. H. (Vict.), F. R. C. P. (London), and George Fletcher, M. A., M. D. (Glas.), M. R. C. P. (London), D. P. H. (Camb.) London, Oxford University Press. 1927. pp. 270.

A concise, clear and readable guide to the diagnosis and treatment of the commoner diseases of the lungs. The authors ride no hobbies; equally it is true they present no new views. Because of its size the book can hardly stretch beyond the scope of a compend. It must, therefore, share the defects and the advantages of brevity, exhibiting at times inadequacy of development of the subject but always giving a clear cut and easily comprehended as well as dependable picture.

I. I. LEMANN, M. D.

Filterable Viruses: Edited by Thomas M. Rivers, M. D. Baltimore, The Williams and Wilkins Company. 1928. pp. 428.

Dr. Rivers writes the introductory chapter covering the general aspects of filterable viruses. He indicates that the ability to pass filters is a characteristic that has been greatly over emphasized and probably occupies too prominent a position in the minds of medical men. There are other characteristics of filterable viruses which appear to be much more important. He stresses the intimate relationship between the virus and the cells of the host and the lasting immunity they produce. He doubts whether they ever have been successfully cultivated in the absence of living host cells. He presents an extremely long list of diseases of man, other mammals, fowl, fish, insects, and plants for which there is evidence that they are due to filterable viruses. He feels sure that many of these are true bacterial diseases and soon will be dropped from the list. The chapter is extremely brief, but is indeed stimulating and should be read by all medical men and, in fact, by all interested in the biological sciences.

Dr. Mudd's chapter on filters and filtration is a welcome addition to literature. I know of no other one place where such authoritative information on the scientific principles and practical technique of filters and filtration may be obtained. It is regrettable that Dr. Mudd has given so little attention to the asbestos type of filters.

In ten pages of fascinating reading Dr. Carrel gives a glimpse into the study of filterable viruses by the use of tissue cultures. He does not make the mistake that so many reviewers do of omitting essential details of technique.

Dr. Cowdry in his chapter on intracellular pathology in virus diseases covers such a large number of disease entities in so brief a discussion that were it not for the excellent illustrations, the chapter would be of little value. The cell inclusions he describes are one of the distinguishing

characteristics of virus infections, as emphasized by Rivers in the introductory chapter.

Dr. Amoss writes the chapter on poliomyelitis exemplifying filterable virus infections of man. Most of the data is available in his article on poliomyelitis in Tice's System of Medicine. This article will provide little comfort for the advocates of the streptococcus theory of the etiology of the disease.

Foot and mouth disease and vesicular stomatitis are discussed by Dr. Olitsky. The virus of the foot and mouth disease is one of the most thoroughly studied of all the viruses, and this chapter may be read by any one who wishes to know the complete story, as far as is now available, concerning a single virus and the disease which it causes.

Dr. Goodpasture's chapter on fowl-pox of chickens and pigeons, Dr. Glaser's chapter on sacbrood of honey bees and the polyhedral diseases of insects, and Dr. Kunkel's chapter on virus diseases of plants are of interest chiefly to the experimental pathologist or general biologist.

Dr. Bronfenbrenner writes the final chapter on bacteriophagy. He is a critical worker in this field and does not commit himself to d'Herell's theory that the lytic agent is a true filterable virus. He gives in thirty pages the essential data concerning the so-called bacteriophage. Reviews of the Twort-d'Herell phenomenon are getting to be fashionable. For the physician with an active interest in bacteriology, who has been more or less confused during the past few years by the multiplicity of articles and opinions that have appeared concerning this phenomenon, Dr. Bronfenbrenner's article will be very welcome.

Concerning the book as a whole one must be most enthusiastic about the bibliographies. Every chapter has its own and is very extensive. Dr. Rivers' chapter of twenty-three pages is followed by a bibliography of five hundred thirty-nine titles, which are classified so as to make them readily usable. The other authors have omitted little that could be desired in the way of references. Different chapters in the book will be read by workers in many different fields, but only a few will care to read the entire book. It seems unfortunate that the book should cost as much as it does.

R. H. TURNER, M. D.

Physical Diagnosis: By W. D. Rose, M. D. 5th ed. St. Louis, C. V. Mosby Co. Illus. pl. 1927. pp. 819. \$10.00.

In this fifth edition minor changes and alterations of no particular note have been made. The author has incorporated several advances in physical diagnosis into this new volume. The volume is large and contains a great deal of information that is readily obtained.

I. L. ROBBINS, M. D.

Special Cytology: Edited by Edmund V. Cowdry.
New York, Paul B. Hoeber Inc. 1928. Two
volumes. pp. xxi+1348, 693 illustrations.

The present publication forms a natural supplement to a volume entitled *General Cytology*, published in 1924 under the same editorship. The material included in *General Cytology* embraces the fundamentals of structure and function which are common to cells generally. *Special Cytology* has for its purpose a more specific treatment of particular cellular varieties, tissues and organs. The title is hardly sufficiently suggestive of the actual scope of the subjects included, which might be more aptly termed collectively "*Special Cytology and Histology*."

Following an introduction by Carrel, there are thirty-six sections, of which the topics and contributors are as follows: Skin and its derivatives, Cowdry; mucous membrane of the nasal cavity and paranasal sinuses, Schaeffer; epithelium of the lower respiratory tract, Miller; salivary glands, Stormont; gastric glands, Bensley; intestinal epithelium, C. C. and M. T. Macklin; cytology of the liver and its functional significance, Mann; cytology of the pancreas, Opie; the erythrocyte, Krumbhaar; lymphocytes and plasma cells, Maximow; the myeloblast, Downey; granular leucocytes, Bunting; macrophages (histiocytes), Maximow; hypophysis, Bailey; pineal body, Tilney; thyroid, parathyroids and thymus, Marine; suprarenal, Stewart; renal tubules, Huber; cartilage and bone, Shipley; synovial membrane of joints and bursae, Key; striated and smooth muscle, Meigs; cardiac muscle, A. E. Cohn; specialized systems of the heart, Todd; visual cells and retinal pigment, Arey; cytology of the internal ear, Shambaugh; internal architecture of nerve cells, Cowdry; general relation of histological character to function in mammalian neurones, Malone; sympathetic nerve cells, Kuntz; neuroglia and microglia, Penfield; cytology of the cerebrospinal pathway, Wislocki; cytology of the ovum, ovary and fallopian tube, Corner; cellular changes in the fluid of the mammalian vagina, Stockard; cytology of the mammary gland, Leo Loeb; interstitial cells of the testis, Rasmussen; male germ cells, Metz; seminal vesicles, prostate and bulbo-urethral glands, C. C. Macklin.

The individual contributors deal, naturally, with topics in the fields of their own researches. As is to be expected in a co-operative enterprise, the various sections are not treated in a uniform manner. Some sections are of the usual nature of reviews. Others introduce, in addition, personal evaluation of the material reviewed. Each section carries an adequate bibliography.

Special Cytology should be a useful reference not only for workers in the biological and basic medical sciences, but also for clinical investigators.

HAROLD CUMMINS, PH. D.

Lobar Pneumonia: A Roentgenological Study:
By L. R. Sante, M. D., F. A. C. R., F. A. C. P.
New York, Paul B. Hoeber, Inc. Illus. 1928.
pp. 137. \$3.00.

This little book of 126 pages, profusely illustrated, will be of interest to any physician interested in lobar pneumonia as well as all roentgenologists. While it is primarily an roentgen-ray study of pneumonia and its differentiation from other lung conditions, the author has attempted very successfully, to correlate the radiological findings with the known facts, clinical, pathological, and experimental. Mason and other investigators have shown that in children, consolidation of the lungs starts in the eveoli at the periphery and spreads to the hilum. The author has demonstrated that, while this is the type most frequently encountered in children, it was rarely the type of involvement met in adults. His serial roentgenographic observations in adults shows that lobar pneumonia begins as a consolidation in the hilum region and spreads rapidly toward the periphery. These observations are in accord with the most recent bacteriological and pathological studies of the disease. The book emphasizes the great value of radiological studies of pulmonary conditions without minimizing the importance of careful history taking and physical examination. The reviewer has no hesitancy in recommending this little volume to the profession.

RANDOLPH LYONS, M. D.

The Use of Symptoms in the Diagnosis of Disease: By Hobart A. Hare, B. Sc., M. D.,
L.L. D. 9th ed., rev. Philadelphia, Lea &
Febiger. 1928. Pl. illus. pp. 528.

This volume is a ninth edition. It has been thoroughly revised and brought up to date. It is a purely clinical work and all laboratory references have been necessarily omitted. The purpose of the book is to acquaint the student and physician with the art and science and medicine and to re-establish it in its proper sphere of prime importance to the doctor and not secondary to laboratory precedures as is now so much the practice. The plan is to name the different signs and symptoms of different portions of the body and the differential diagnosis to be obtained from them. The book is a most useful guide and aid.

I. L. ROBBINS, M. D.

Post-Mortem Appearances: By Joan M. Ross,
M. D., B. S. (Lond.), M. R. C. S., L. R. C. P.,
with preface by E. H. Kettle, M. D. 2nd
ed. London, Humphrey Milford, Oxford Uni-
versity Press. 1928. pp. 225.

A thorough revision of an extremely practical little book of somewhat over two hundred pages describing the gross appearance of the important organs of those who die from various types of disease.

J. H. MUSSER, M. D.

The Principles and Practice of Obstetrics: By Joseph B. DeLee, A. M., M. D. 5th ed., thoroughly revised. Philadelphia and London, W. B. Saunders Co. 1928. pp. 1140. \$12.00.

That a book of the size and consequent cost of DeLee's *Principles and Practice of Obstetrics* should within the space of fifteen years have reached its fifth edition and its thirteenth printing is a surer tribute to its real merit than the eulogies of any reviewer. And this fifth edition is quite as worthy of praise as any of the preceding volumes.

For one thing, the physical difficulties of reading it are not quite so great because, by a slight change in the format, the unwieldy size has been somewhat reduced. There is still, however, room for decided improvement in this regard. Whether the subject matter could be profitably abbreviated is a question which probably demands a negative answer, but frequently the reproach of verbosity can be justly brought against the author, and it might be well at some future time for a revision to be made simply from this standpoint. The book is too valuable to be condemned, as it unfortunately has been, on the basis of its mere bulk.

Practically the same plan has been adhered to as in the earlier editions, the subject being divided into the physiology of pregnancy, labor and puerperium, the pathology of the same, and operative obstetrics, each with its detailed subdivisions. The arrangement of the subject matter visually, *i. e.*, in large and small type, according to the relative importance of the questions under discussion, is an excellent if mechanical device, though naturally one does not always agree with the author as to what is important and what is not. The table setting forth the various types of toxemia is another excellent mechanical presentation, as is the table dealing with the management of contracted pelvis. The actual mechanism of labor has always been a particularly well handled subject, and the care of the breasts and the treatment of the newborn child are both handled with a detail foreign to the average text on obstetrics. The illustrations add materially to the value of the book, and many additions have been made to them.

In every respect the subject matter has been brought up to date. All the important recent investigations in biochemistry and other laboratory sciences are included, and many chapters have been partially or entirely rewritten, notably those dealing with the treatment of hyperemesis gravidarum, eclampsia and the other toxemias of pregnancy, abruptio placentae, placenta previa, postpartum hemorrhage, puerperal infection and similar conditions. Likewise the chapters dealing with the various operative procedures have been

thoroughly revised. The low or cervical Cesarean section, which DeLee himself has done so much to popularize, is treated in much more detail than in the last edition, and the figures from the Chicago Lying In Hospital, six hundred twenty cases with only six deaths, are the author's justification for his advocacy of this particular procedure. Zarate's modified symphysiotomy is added, as is the Gottschalk-Portes exteriorization of the uterus after Cesarean section in infected cases. The author's comment is that if the claims of the latter procedure can be substantiated, as they apparently can be, the whole chapter of the management of infected labors must be rewritten, and the field of the Porro operation and of craniotomy on the living child can be very materially reduced.

The radicalism of this author is always a favorite topic with reviewers and in some respects, at least, the approach is justified. Even the fact that he would limit certain procedures to the expert obstetrician operating in the well equipped maternity does not, it seems to me, lessen the danger of advocating such methods as cervical manipulations in uterine inertia (p. 615), the manual removal of retained placental fragments except on very strictly limited indications (p. 833), and the application of the vulsellum to steady the fetal head after manipulation in face presentations (p. 995). Against this, however, must be set his conservatism in the management of puerperal infection and particularly infected abortions, in the management of placenta previa, in the use of pituitrin, in the repair of cervical lacerations after delivery, and in a hundred similar instances. In my own opinion, the radicalism of DeLee has become a tradition with certain reviewers, and I am inclined to believe that most often it is more apparent than real.

Certainly, as the author points out, the continued high mortality in obstetrics is a justification for his view that pregnancy and labor are largely pathologic, and his insistence on the essentially surgical nature of this division of medicine is not ill-advised in a day when the general feeling seems to be that no special qualifications are required to handle a delivery other than the right to add M. D. to one's name.

This is rather too full a text to put into the hands of the average medical student for his daily use but it is an invaluable book of reference, a real encyclopedia, both for the general practitioner who does obstetrics and for the obstetric specialist who endeavors to keep abreast of the times. It is one of the few books in any tongue in which obstetrics is presented both as a science and as an art, and in which the subject receives a really dignified and adequate presentation.

C. JEFF MILLER, M. D.

An Outline History of Ophthalmology: By T. H. Shastid, A. M., M. D., F. A. C. S., Sc. D., Ll. B. Southbridge, Mass., American Optical Co. 1927. pp. 33.

If you really love Ophthalmology, read this small volume. You will enjoy every word. It will bring before your eyes the procession of ophthalmic progress from the days of Ancient Babylon to our generation and will enable you to shake hands with Hippocrates and chat with von Graefe.

Hippocrates will tell you how he treated trachoma some twenty-five hundred years ago with conjunctival massage in pretty much the same way that we use today.

Some two thousand years ago a Roman named Celsus elaborated on the then existing Colyria. He tried everything from camel dung to cod-liver oil, with and without religious ceremonies of various sorts. He at least knew that oily substances protect the cornea when its surface was abraded.

Although the word cataract was not used until a later date, lens opacities were considered due to an opaque fluid which flowed downward between the pupil and the lens, by Rhazas, an Arabian who lived about a thousand years ago. He also noted that the pupils become smaller when exposed to light. Alhazen a fellow country-man somewhat later worked out the fundamentals which underlie modern optics. He was the first to understand that vision is produced primarily by the light which comes from the object at which we look.

As the result of an accident in the course of a cataract depression in 1745, large fragments of lens fell into the anterior chamber, which Daviel removed by means of a scissors incision in the cornea—the first cataract extraction.

Although Von Helmholtz in 1850 discovered that the back of the eye could be examined with the ophthalmoscope, the real discoverer was an Englishman named Charles Babbage, who through an unfortunate chain of circumstances, did not receive the credit nor recognition of his efforts.

These are but a few of the interesting facts that the author tells us.

It is with great regret that we read that Dr. Shastid will retire from ophthalmic literature. For practically a generation he has devoted his time, efforts, and exceeding literary ability largely to recounting the lives of those who have made ophthalmology. Practically, unassisted he wrote the biographies in the American Encyclopedia of Ophthalmology. Without his efforts our specialty would be poorer and most of us would not be nearly so well acquainted with those who have consecrated their lives to helping the world see better.

CHARLES A. BAHN, M. D.

Healthy Growth: By Alfred A. Mumford, M. D. London, Oxford University Press. 1927. pp. 384.

The author of this excellent book desires to attack the problem of healthy growth from a different angle from previous methods. The author has in mind the adolescent schoolboy, whom he feels has not been properly equipped for the great perplexities of later life. He attributes this failure to our possession of inadequate standards of healthy growth, both from the physical and mental standpoint.

Throughout the book the author endeavors to substantiate his arguments by many elaborate experiments and complicated charts of what he thinks are standards. It is the reviewer's opinion that much of this could be condensed. However, anyone desiring exhaustive information along lines of physical and mental development is recommended to read this book, as it is undoubtedly written in a most delightful style.

O. M. LARRIMORE, M. D.

Troubles We Don't Talk About: By J. F. Montague, M. D., F. A. C. S. Philadelphia, J. B. Lippincott Company. 1927. pp. 248.

A book for the laity written by a proctologist of broad mind and keen intelligence.

J. H. MUSSER, M. D.

The Prevention of Preventable Orthopedic Defects: By S. C. Woldenberg, B. Sc., M. D., M. Sec. St. Paul, Bence Publishing Co. 1927. pp. 120.

This is the first time your reviewer has ever seen a book which has attempted to deal with preventable surgery, and as our good friend Dr. Ridlon in his foreword says: "When the author asked me for advice, I harbored a secret hope that he might to some extent point out the way to eliminate much of the present surgery from Orthopedic surgery".

The book does not attempt anything new and as it covers a large field in 120 pages, little can be said on any one subject. However, there are many valuable suggestions brought out and a perusal of the book is well worth one's time.

EDWARD S. HATCH, M. D.

Annals of the Pickett-Thomson Research Laboratory, Volume II. Baltimore, Williams and Wilkins Company. 1927. pp. 316.

A large paper-covered tome devoted to research on streptococci, with extensive bibliography and many very excellent plates.

J. H. MUSSER, M. D.

The Examination of Patients: By Nellis B. Foster, M. D. 2nd ed., rev. Philadelphia, W. B. Saunders Company. 1928. pp. 392.

There is a great tendency in medical teaching to do away with much of the former old methods of instruction, such as those, for example, which require men studying for medicine to learn an enormous amount of material by rote and without thought. The present book by Foster exemplifies very well indeed this method of teaching. The important, salient features in the examination of the patient are disclosed and are presented in a real and attractive manner. There is no attempt to list a thousand and one different signs and symptoms which every practitioner of medicine who has been out more than a few years has forgotten and which do not form the basis of that man's knowledge of clinical medicine. It is for this reason that the book is of value. It stresses the important and does away with a tremendous amount of the unnecessary and trivial.

J. H. MUSSER, M. D.

Ophthalmic Year Book: V. 23. 1927. Chicago, Ophthalmic Pub. Co. 1927. pp. 338.

This review of literature will probably be the last of a valuable collection of digest and bibliography, for the reason that it lacks volunteer literary help and financial backing. This is unfortunate for it has been greatly appreciated by many, yet great numbers have neglected to give to it actual support. Let us hope that this will not be the case and that it will be possible to continue the publication as heretofore.

T. J. DIMITRY, M. D.

A Text-Book of General Bacteriology: By Edwin O. Jordan, Ph. D. Illus. 9th ed., rev. Philadelphia, W. B. Saunders Company. 1928. pp. 778.

The ninth edition of this standard text-book on bacteriology needs no introduction to the world of bacteriologists nor does it need much acclaiming to the medical profession as a whole, many of whom have learned from its pages much that they know about bacteriology. This new edition has been added to and amended as well as deleted in part, for its presents size is much the same as previous editions. Dr. Jordan has revised and rewritten the chapter on parasitic protozoa, he has added new material on the bacteriology of scarlet fever, erysipelas and rheumatic fever, and the section on bacteriology of water has been extensively altered. Minor changes have been made so as to bring the subject matter thoroughly up to date.

J. H. MUSSER, M. D.

PUBLICATIONS RECEIVED.

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Williams & Wilkins Company, Baltimore: Nutrition, by Walter H. Eddy, Ph. D.

P. Blakiston's Son & Co., Philadelphia: Practical Clinical Psychiatry for Students and Practitioners, by Edward A. Strecker, A. M., M. D., and Franklin G. Ebaugh, A. B., M. D.

C. V. Mosby Company, St. Louis: Operative Surgery, by J. Shelton Horsley, M. D., F. A. C. S. Modern Methods of Treatment, by Logan Clendenning, M. D. Clinical Gynecology and Obstetrics, by Rae Thornton La Vake, A. B., M. D., F. A. C. S. Syphilis, by Henry H. Hazen, A. M., M. D. The Duodenum, by Pierre Duval, Jean Charles Roux and Henri Beclere, translated by E. P. Quain, M. D.

W. B. Saunders Company, Philadelphia and London: Collected Papers of the Mayo Clinic and the Mayo Foundation. Clinical Medicine, by Oscar W. Bethea, M. D., Ph. G., F. C. S., F.A.C.P. Addresses on Surgical Subjects, by Sir Berkeley Moynihan, Bart, Gynecology, by William P. Graves, A. B., M. D., F.A.C.S.

The MacMillan Company, New York: Folklore of the Teeth, by Leo Kanner, M. D.

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Rockefeller Foundation, New York: Methods and Problems of Medical Education.

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REPRINTS.

Report of Committee appointed to Investigate Definition of Terms used in active Optic Pathology. The Treatment of Malarial Anemia, by Joaquin R. Toba, M. D. Gonorrhea in Women: Its Treatment by Diathermy, by Winfield Scott Pugh, B. S., M. D.

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YESTERDAY AND TODAY IN MEDICINE.*

J. AUGUSTUS CRISLER, M. D.,

MEMPHIS, TENN.

Approaching an age in medical life in which I am privileged to look back over the years that have gone, I stand now with cherished thoughts of the romance of medicine of yesterday and with proud recognition of the achievement of medical science of today.

In contemplation of the future, I feel the thrill which should be felt in the heart of every young medical man as he begins his career, trained as a scientist by modern educational methods, and inspired as an idealist by the noble example and precept of those whose memory we delight to honor.

More than thirty years ago, when I began the practice of medicine, the leaders of our profession in Mississippi were not specialists or research laboratory workers, but general practitioners—clinicians of culture as well as of learning. They accomplished much with simple equipment, and arrived at their diagnosis without the aid of laboratory refinements, and made their visits without the dispatch and comfort of motor cars traveling over hard surfaced roads. Without instruments of precision they developed ingenuity and resourcefulness, and without intense scientific training they displayed a compensa-

tory clinical acumen akin to a sixth sense, or *tactus eruditus*. They knew their patients through personal contact and association, and they studied the experiments which nature made upon the sick and the suffering. Through long hours of patient watchfulness and attendance, they studied the natural phenomena of disease, and learned to assess correctly the value of symptoms. Their reputations were rather local, but they stood high in the profession of this State, and were held in the highest esteem by the people of their communities. Their contributions were more to the alleviation of suffering through their daily work than to the store of scientific knowledge.

Such pioneers as Ward of Winona, Isom of Oxford, Taylor of Corinth, Minor of Macon, Vaughan of Meridian, Jones and Bennett of Brookhaven, Wert Johnson of Jackson, Quinn of Vicksburg, Dunn of Greenville, Young and Sharp of Grenada, and many others exhibited a rare combination of brain and heart which molds character, and left to this society a rich heritage. They were the Sydenhams and McKenzies of Mississippi Medicine.

A change, however, has been wrought by the improvement in medical education and the facilities for post-graduate study, and what phenomenal results have followed the discoveries of experimental investigation.

Our young medical men are being more thoroughly and scientifically trained than in the earlier days when they were given

*Oration in Medicine, Mississippi State Medical Association, Meridian, May 10-12, 1928.

two years of lecture courses, but it seems to me that they fail to grasp and to hold as their own, the mass of scientific facts which is crowded into the curriculum. In other words, I doubt if their retentive powers are as good as those of the older men. As prophesied by Osler, some of our recent graduates tend to exhibit a kind of medical Chauvinism; that is to regard lightly the thoughts and work emanating from any but their own alma mater, their devotion to which seems to prejudice them against the work of other, perhaps, less recognized institutions. By raising the standard of medical colleges, and constantly changing the methods of instruction, medical education has been greatly improved, but its problems are still unsolved. The value of post-graduate study is well illustrated by the benefits which some of the men derived from their instruction and experience during the World War, and everywhere opportunities for post-graduate study are increasing and are available to all.

As a corollary to the education of our students and ourselves there is the problem of education of the public in matters of health, so that they shall learn to recognize men of training and ability and not be misled by those who have only the qualities of plausibility and persuasiveness. In the campaign for periodic health examinations, and in the dissemination of information about cancer and tuberculosis, we are trying to stress the importance of early recognition of disease. In order that the profession may not be found wanting in its knowledge, we must learn more of the early indications of disease processes, for after all many of our clinical symptoms of disease are in reality very late manifestations. For instance in the older text books, the diagnostic symptoms of carcinoma of the breast were pain, enlargement of the axillary glands and a lump in the breast, with discharge and ulceration. As some one has aptly expressed it, "these are

not signs of cancer of the breast, but the symptoms of death."

With the introduction and increasing use of mechanical means of examination, much that was hitherto obscure, is now made accessible, and our clinical interpretation of symptoms and signs find added weight in the visualization of actual structural change, or the expression of functional incapacity of an organ. Through the use of opaque photographic media, the roentologist now shows us the contour of the gall-bladder and the urinary bladder, the outline of the kidney, pelvis and calyces, the structural integrity of the duodenal bulb, the size, shape and general outline of the maxillary sinuses, the distribution of the bronchial tree, the outline of the uterus and tubes, and even the ventricles of the brain may be photographed. One may well speculate on the future diagnostic possibility of the roentgen-ray in medicine.

Hitherto used only in larger hospitals and laboratories devoted to experimental study, the electrocardiograph is now rapidly coming into general use, and we daily interpret the written record of the irregularities of the heart beat and with accuracy and certainty locate disturbances in the conducting bundle of His.

The metabolimeter expressing the rate of metabolic activity has proven of unquestionable value in detecting the disturbances of the thyroid gland. No longer is the diagnosis of myxedema confined to those well defined cases manifesting dry skin, coarse hair, heavy features, brittle finger nails and rapidly increasing weight, but we have come to recognize the early case of hypothyroidism, and have learned to combat the disease in its earliest manifestations.

Along with this development of mechanical aids in medicine has gone the brilliant study and progress of biochemistry and physiology. The suspected nephritic is investigated by an estimation of the func-

tional capacity of the kidneys, by the determination of the degree of nitrogenous retention in the blood, the variation in specific gravity of several specimens of urine, and the ability of the kidneys to excrete a selected dye.

Disturbance of the acid-alkali equilibrium of the blood are now detected through studies of blood chemistry, and from this knowledge has come an interpretation of previously little understood symptoms, and the development of methods for combating and preventing such imbalances as alkalosis and acidosis. The estimation of the chloride content of the blood is of particular value in establishing the presence or absence of alkalosis, and the carbon dioxide combining power of the blood plasma is an index of the degree of acidosis.

Recently much interest has been displayed in calcium metabolism and the influence of the parathyroid glands on the complete metabolic activity of calcium has been definitely established. The occurrence of tetany no longer presents a problem and through knowledge acquired, we have means of combating this disturbance of the physiology of the organism. Tetany following thyroidectomy is easily recognized and immediately controlled by such specific therapy, as parathyroid extract and calcium.

The comparatively recent isolation of the hormone insulin, which in some manner controls the metabolism of carbohydrates, thereby influencing the metabolic activity of fats, was perhaps the most outstanding medical achievement of the century. The period of expectancy of the adult diabetic has been greatly increased, and the juvenile diabetic no longer drifts into malignant acidosis and coma. His growth and development progress normally over a period of years, and who knows but what he may be carried into productive manhood and citizenship by means of this extract from one of the glands of internal secretion? As a consequence of the use of

this remarkable agent, we no longer fear the results of major surgical procedures in those individuals, manifesting the clinical syndrome of glycosuria, hyperglycemia and acidosis.

We are learning more of chemical, biologic, and physiologic pathology instead of contenting ourselves with the knowledge of structural changes. We are not satisfied to know that a patient has a heart murmur, but we must try to determine the functional capacity of this organ. For after all symptoms are manifestations of disturbed function, and not of structural changes, and many of our newer methods of investigation are attempts to estimate the functional capacity of various organs. For instance, the method of cholecystography, originated by Graham, is an attempt to demonstrate the ability of the gall-bladder to concentrate and to empty, which are its only established functions.

With renewed interest and remarkable originality of thought, the best minds of today are centered upon the physiological interpretation of the function of the liver, which is unquestionably the biochemical laboratory of the human body. Is it too much to prophesy that from these studies hitherto unexplained physiopathological reactions will not only be correctly interpreted, but means and measures for their prevention and cure will be provided? Crile says "Life depends upon the liver."

More and more we are learning to recognize the expression of the sympathetic autonomic nervous system in the production of symptoms. Long overlooked, its influence on visceral activity is beginning to be recognized, and with an increasing knowledge of physiology we are learning to appreciate how disturbances of the sympathetic nervous system can materially influence the viscera in hastening and maintaining their evident departures from normal. Such operations as periarterial sympathectomy, denervation of the stomach, and cervical sympathectomy are impres-

sive examples of the efforts of surgeons to treat disease manifestations by correcting hyperphysiological activity of the nerves supplying a viscera.

Another advancement in the treatment of disease is in limiting our use of remedies to those natural agents: diet, sunshine, fresh air, and rest, and to those few well tried drugs whose pharmacological value has been thoroughly established. But we must be cautious lest the avalanche of pseudo-scientific literature which covers our desks leads us back to the use of a score or more of remedies for every symptom.

Many diseases are fairly well treated in the individual without having as yet discovered their etiology. Pernicious anemia seems to be greatly improved by feeding whole liver and liver fraction. However, the problem of preventive treatment of these diseases is inadequately met until their causes are established. When etiological agents are discovered the medical profession is quick to turn this knowledge into the path of prevention. We have stamped out smallpox, yellow fever, bubonic plague, and epidemics of scarlet fever and typhoid fever are becoming less severe. Witness the control of malaria and typhoid fever in your own dear State.

Perhaps no other disease has received as much scientific investigation as cancer, yet despite the ceaseless co-operative efforts of the laboratory-worker, the clinician and the surgeon, the cause of cancer still remains hidden in apparently hopeless obscurity. In our eternal hope we have investigated the cures employed by quacks, and have accepted with enthusiasm the scientific suggestions of research workers, only to find in the end disappointment and failure. For the cancer patient we use surgery, radium and roentgen-ray, but for the control of cancer we are dependent upon educating the public to the importance of early treatment, and to the recognition of precancerous lesions.

The ever widening field of medicine of today has developed the specialist, a man who, by limiting his scope of activity, is able to acquire more accurate and extensive knowledge in his particular branch of the science. There are those who claim to be specialists who have no more diagnostic skill nor successful methods of treatment than the old family doctor. Other specialists become mere technicians, having lost sight of disease as it effects the entire organism and find explanation of every symptom in the disturbance of the organs they treat. McGuire says: "His patients often suffer from special attention and general neglect. Motes are pulled out of the eyes and beans are left in the belly, or the abdomen is invaded for real or supposed appendicitis and the lungs are left to fight their own battle with tuberculosis."

To offset the disadvantages of specialization, there is the system of group medicine, a kind of medical teamwork which functions as the surgical team does in the operating amphitheatre. But above all, we need today, as we have always needed, the competent general practitioner, for he is the backbone of medicine, and the standard by which our progress is measured.

And he it is I would applaud—this gallant crusader; this tireless minister to the poor; this fearless counsellor of the rich; this faithful friend to the unfortunate; this zealous and undaunted seeker after truth.

It is the glow of his steadfast, if sometimes feeble torch, that has lighted the incandescent way to thrilling discoveries in the laboratories of today. It is the sturdy tread of his untiring footsteps that echoes down the corridors of science. It is from his hand that the young doctor of today will receive the scroll as did the runners in the ancient days. It is from his lips they will hear the words of courage: "Go on—Go on; my body is weary, but my spirit travels with you."

THE YOUNG PHYSICIAN.*

C. JEFF MILLER, M. D.,

NEW ORLEANS.

All valedictory and baccalaureate remarks have certain handicaps to overcome, and the Ivy Day address is in even worse case than any of the others. Besides being delivered on a particularly hot morning in June, it is always made by a member of the Medical Faculty, from the voices of whom, after years of dutiful listening, the graduates might expect at this time to have surcease. I feel for you, gentlemen, and I shall show my sympathy in a practical way by being as brief as I can.

The traditional observation that commencement is truly the beginning of active life is not quite exact in regard to the medical graduate. Most of you—I wish it could be all of you—will serve one or more interne years, and during them, I venture to predict, you will learn more of your profession than you have learned in all your college classes. It is not the rule here, as it is in certain other schools, that the medical degree is withheld until a year's internship has been completed, and I am not sure that this is the wisest way to accomplish the result, but certainly the principle is absolutely correct, that no man is fitted to practice medicine independently until he has practiced it on actual patients and under strict supervision.

The great weakness of medical education today is, as you know, that the contact with patients during the undergraduate years is extremely brief. The laboratory or pure sciences are in the saddle, and, as more than one voice of authority has proclaimed, we are in danger of forgetting that the function of the medical school is, after all, to train physicians to minister to the sick. More and more in the last quarter of a century has the clinical aspect of medicine been slighted in medical education. The heads of departments in the

foremost schools of the country are no longer active clinicians. They are full-time men, well trained, able, scholarly, I grant you, but nevertheless men whose point of view is warped by the fact that they have no real contact with patients, that their activities are largely or entirely confined to the classroom and to the laboratory. I do not propose on an already warm morning to enter upon the vexed discussion of laboratory versus clinical medicine, which would make us all much warmer than we are now. But I would point out that most of the verbiage could be eliminated from the argument if common sense were permitted to rule the situation, if it were realized that the one aspect of medicine is the complement of the other, and that neither the clinician nor the laboratory worker can live to himself alone. The practising physician is bound to the research physician by a thousand indissoluble ties, and, as Cushing aptly says, it could not possibly harm a teacher of the preclinical sciences to have served a house-officership, nor could it dampen his investigative ardor to spend an occasional hour or two in contact with patients in the wards or the clinics.

Whether the old system of medical education, which put most of the emphasis on the clinical side, produced better physicians than the present system, in which the emphasis is reversed, is the acid test of the problem, and you of this medical generation will write the answer in your own achievements. Personally, I was educated under the old system and I have always regretted that my laboratory training was so slight. But I fear that we are going too far in the other direction, and I know that Graves is right when he says that the modern medical graduate has had little training in practical therapeutics and none at all in the humanities of medicine. And because this is so, I know that an interne year, a practical apprenticeship, as it were, is infinitely more necessary and more desirable now than it was twenty-five years ago.

*Ivy Day address, Tulane University School of Medicine, June 12, 1928.

After the interne year, what? Well, another over-worked tendency in medicine today is too early specialization. Some degree of specialization, of course, is inevitable, for the march of medical events has been too rapid to permit the individual physician any longer to be all things to all patients. But let me remind you that all successful specialism is built upon the foundation of general practice. You cannot treat special diseases until you realize their relation to general diseases, until, as Chesterton puts it, you see "the broad daylight of proportion which is the principle of all reality".

And if you prefer general practice, if you have no leaning toward any of the specialties, by all means remain in general practice. We need more general practitioners today, as a long-suffering and loudly-complaining public will testify. There is no stigma of disgrace, no hint of contumely, attached to these men of fine devotion and consecration whose feet are set, if you will, in the middle ways. The profession of medicine needs few things more than a recrudescence of the old-fashioned family physician.

But if you do decide to specialize, you must realize at the outset that something more is needed than the mere decision to do so. Special practice implies special training. I take surgery as my illustration because it has a constant lure for the young graduate, but what I have to say is applicable to any branch of medicine. Whether the day will ever come when there will be more restrictions on the practice of surgery than there are at present, I cannot say, but I greatly fear that unless we clean our own house, other duly constituted authorities will clean it for us. No other branch of medicine is fuller of self-appointed specialists, no other branch actually requires a more thorough preparation. "A man," says DaCosta, "who tries to start out as a surgical specialist never learns the rudiments of surgery throughout all his days," and W. J. Mayo is not unduly harsh when he says that "young

men without special training are not to be encouraged in wanton assaults on major surgical diseases unless justified by necessity," a necessity, I might add, which seldom exists in these days of easy transportation and many hospitals.

Manual dexterity is the smallest part of the surgeon's kit. Far more does he need surgical judgment and a surgical conscience and that most prosaic thing, a knowledge of surgical anatomy. Moynihan, you will remember, stresses the importance of learning pathology on the living subject, but you will note that he does not include anatomy in the lesson. Do not, I beg of you, attempt to learn anatomy in the operating room and on your patients. The place to learn it, the only place to learn it, is in the dissecting room and on the cadaver. DaCosta says that when it comes to surgery some people do not know enough to be afraid; that knowledge, I fear, comes only with the years, but at least, if you determine to be a surgeon, write it on your heart that the best surgeon is often the man who does the smallest amount of surgery, and that under certain circumstances, at least, time may be the best surgeon of us all.

No matter what branch of medicine you elect to follow, you must be students until the end of your days. Medicine does not stand still and of the making of its books there is no end. If you have not already cultivated the habit of study—and it is astonishing how many college graduates have not—then use your spare time—of which, alas, you will have much in the first years of your practice—to form the habit. If you are so exceptional and so fortunate as to be busy at once, then make the time. But read regularly, make systematic study an integral part of your life, lose no opportunity of observing the work of others, attend medical meetings, visit hospitals and clinics, finally, when you have something to say, do not hesitate to say it or to write it yourself. "The man," says Francis Bacon, "that is young in years may be old

in hours if he have lost no time." Turn the lean years to account by cultivating the habits of the student, by keeping abreast of the medical times, and you will find yourself repaid a hundred fold and more.

Why you have decided to be physicians I do not know, and I greatly doubt whether many of you know either. There are some among you, I am sure, who have really had a vocation, who, as wise old Stephen Paget says, "were called to be doctors before (you) were called to be babies," but most of you, I am sure, are where you are for more accidental reasons. Some of you, I question not, have erred in your choice, are realizing, even now, that you are not where you would be, that your love lies elsewhere. If this is so, if you can honorably retire, do so before it is too late. But most of you will not be so situated as to be able to throw away these years of preparation, and you must lie upon the bed you have made. Remember, in that case, that in many lives—I had almost said in most lives—duty faithfully done may well take the place of inspiration, and that the grace of courage, in the phrase of the beloved and gallant R. L. S., is a staff which each of us may cut for our own journey.

Even those of you have turned to medicine from sheer love, who follow it with the devotion St. Francis lavished on his dear Lady Poverty, have chosen a life of arduous toil, a life that in its very essence will never be an easy one. Whether you will it so or not, from this time forward your life belongs largely to others. You are dealing in human lives, you are set above other men in that, as far as mortals may, you hold the issues of life and death in your hands. You will know anxious days and wakeful nights, you will know self-reproach and many misgivings and much soul-searching and heart-breaking care. You cannot be faithful to your profession and avoid these things. You will know what it is to give without stint of your time, of your knowledge, of your skill, of your very self, and sometimes to give it

all in vain. You have chosen a profession, not a trade, a profession whose only reason for being is to succor mankind, to add to the sum of health and happiness on earth, not to exploit human beings for personal gain. Your reward will be in kind quite as often as in coin of the realm, but no matter what it is, no matter if it does not come at all, the medical profession, like the priesthood from which it springs, must not be commercialized. "The world must return to the word duty and be done with the word reward."

Stevenson, in one of his letters, says that he went to church and the clergyman did his best to make him hate him. I am afraid I am in the situation of that clergyman. I have certainly preached to you, and in these unregenerate days it is highly unfashionable to preach and equally unfashionable to listen, as you, perforce, have been obliged to do. I realize that I have said nothing to you which you do not already know. I have merely tried to remind you again of a side of the medical profession which in the busy round of college and in the practical atmosphere of these modern days you are all too likely to forget. You are as much bound by the old Oath of Hippocrates as if, as is still the custom in some medical schools, you had actually subscribed to it, and you will learn, as the years go by, that "only in accomplishing this oath and not confounding it" may you expect to have "enjoyment of life and art" and "good repute among all men for ever and ever."

Spirochetal Jaundice.—In the eighth proved case of *Leptospira icterohemorrhagiae* reported in the United States, the symptoms, including the usual relapse, were characteristic of this disease. The mode of infection could not be determined. Mulholland and Bray state that jaundice with high fever, prostration, muscular pains, nosebleed or hemorrhage with lymphocytosis and many large lymphocytes should make one suspect Weil's disease. The diagnosis can be made in the early stages by inoculating a guinea-pig with the patient's blood. The authors agree with numerous other writers that mild jaundice, as seen in epidemics, particularly prevalent in institutions, is probably not of this type, for injections of blood into the guinea-pig from a number of such cases gave entirely negative results. J.A.M.A., 90:1113, 1928.

THE CONTROL OF TUBERCULOSIS IN INFANTS AND CHILDREN*

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There are many factors which will necessarily enter into any program of prevention of tuberculosis in infants and children. Tuberculosis is defined by practically all the authorities as the condition resulting from an invasion of the body by the tubercle bacillus or as a specific infectious disease caused by the invasion of the body by the tubercle bacillus.

For a more practical working basis it occurs to me that we should consider the disease both contagious and infectious. It is generally accepted now that practically all of our tuberculosis is contracted in infancy or childhood. In many instances the disease is arrested and remains dormant over a period of years or until the invasion of the body by some other disease lowers the vitality and reduces the patients resisting power.

There are only two types of tuberculosis which we may consider of importance in the discussion of this subject at this time: the human and the bovine. We contract most of our tuberculosis by contact. In the fight against tuberculosis there has been a reduction in the number of deaths but not a proportionate reduction in the incidence of the disease. In other words our activities have been centered more on the cure or arrest of the disease and the protection of the sick patient in order to prolong his life rather than the prevention of the disease in others.

Eugene L. Opie and Hans Anderson state that the lesions which occur in the lungs of almost all individuals who die from conditions other than tuberculosis have the characteristics of tuberculosis of childhood; that is, they occur as foci of infection in the substance of the lung and are

not more frequent in the apices than elsewhere. Surely it is very logical to believe that childhood tuberculosis is the forerunner of the adult type. Then if adult tuberculosis is to be successfully combated it should be attacked at its source, namely in infancy and childhood.

There is no doubt now that the incidence of tuberculosis infection has been exaggerated in this country, yet we know that around one hundred thousand people die of the disease in the United States every year. We are losing about two thousand people annually in Mississippi from tuberculosis and this does not include the many deaths from other causes in whom tuberculosis was a factor. Von Pirquet in 1909 published statistics from Vienna on 1334 children up to 14 years of age. He showed that 70 per cent of the children gave a positive tuberculin skin test and that 90 per cent at 14 years of age reacted positively to tuberculin. These statistics were adopted as universal and as a standard in this country, but recent data obtained by recognized authorities have proven the extent to which we have been mistaken. It would seem that the incidence of tuberculous infection in children is to a great extent a community affair varying with the prevalence of tuberculosis in the community or city. In Vienna, for instance, it is well known that the disease is rampant and almost every child can be considered a contact. About one fifth of all deaths in Vienna are due to tuberculosis, therefore, it has been thoroughly proven that we could not adopt the statistics of Vienna as being indicative of the prevalence of the disease in this country, yet we know that the prevalence of this disease in our country, and in this state, is alarming. It is estimated that we have constantly in our state from twenty to thirty thousand cases of active tuberculosis. Now if we will just consider for a moment the thousands of little children who are being exposed daily to these active cases and at the same time realize that it

*Read at the Mississippi State Medical Association meeting, Jackson, Miss.

is practically impossible for a young child or infant to be continually exposed in this manner and escape the infection, then we will begin to see the seriousness of our problem.

The prevention of tuberculosis in infancy and childhood should begin first in the prevention of marriage between tuberculous individuals, or if married, to prevent the conception of children. Now let it be understood that we are not so radical as to say that we should prevent the marriage and conception of children in the apparently cured or arrested case. Neither man nor woman has a right to marry when actively ill with tuberculosis, but they may marry and have children when the disease is cured or apparently has been arrested. A thorough physical examination by a competent physician at least every three or four months is advisable in such cases. After such examinations the physician should offer such advice as he deems proper. If a woman who is pronounced actively tuberculous becomes pregnant she should receive the very best of care before, during and after labor. The labor should be handled in such a manner as to prevent the exhaustive bearing down efforts which are likely to produce pulmonary hemorrhage or flare up an old arrested case. In such cases when the child is born it should be immediately removed from the mother and placed in a healthy environment or with a foster mother. The tuberculous mother should never nurse her baby and close contact of mother and child must be strictly avoided. The infantorium idea properly supervised by a competent pediatrician would be almost ideal for such cases but the same work may be done in our modern well managed preventoriums.

The work of Prof. Calmette leads us to hope that more frequent employment of his clinical work with B.C.G. (non-tuberculegenic modified bacillus) will perhaps enable the situation to be mastered as far as it concerns the newly born baby of tuber-

culous parents. According to Calmette, in France alone, up to January 1, 1926, five thousand, one hundred and eighty-three nurslings have been vaccinated by mouth, one thousand three hundred and seventeen of them within the last six to eighteen months. The mortality from birth to one year of infants of tuberculous mothers or of those in infected families is at least 25 per hundred and frequently much higher but that of infants protected by B.C.G. is less than 2 per hundred. This method of immunization is harmless. It does not even involve danger of accident, febrile reaction or physiologic disturbance. The duration of conferred immunity cannot as yet be determined but it appears to be long enough to protect the children from family contamination until after they are three years of age provided the contagion is not too massive. This vaccination should not cause any one to dispense with any hygienic measures which are capable of preventing or lessening massive infection.

Although we have in Mississippi but a very few tuberculous cattle it goes without saying that all dairy cows at least should be tuberculin tested at regular intervals and all tuberculous cattle removed from the herd at once. Just at this point it is well to say that raw or unboiled milk has no place as a proper food for babies under one year of age. All cows' milk should be boiled or at least pasteurized before being fed to babies under one year of age. All anemic, undernourished or underweight children and all contact children should receive the skin or intracutaneous tuberculin test. The positive reaction indicates the existence of tuberculous infection, not necessarily the existence of clinical tuberculosis. If the reaction is positive or if the clinical symptoms indicate tuberculosis the usual hygienic dietetic treatment should be instituted at once.

The diagnosis of tuberculosis in children is a rather difficult job. The signs and symptoms upon which a diagnosis can be made of early tuberculosis are indeed very

few. The diagnosis of early tuberculosis is important from the social aspect and also from an economic point of view. It should be given the attention it deserves not only from the specialist but from the general practitioner as well because it is the latter who will necessarily have the greatest responsibility in the premises. Unfortunately little has been written on the subject of the diagnosis of tuberculosis in infants and children. The medical schools have been woefully negligent along this line of teaching. There remains much confusion and differences of opinions as to what constitutes a basis for diagnosis of incipient tuberculosis in children. There is a great demand by the pediatrician for more light on the subject. It is obvious that if progress is to be made in combating this much dreaded disease that it must be diagnosed at the earliest possible moment after infection has occurred. It is still more obvious that if further progress is to be made in adult tuberculosis, we must necessarily make the diagnosis during childhood, at which time the infection takes place. The reliability of the intradermal or even the skin tuberculin test of today need not be doubted. Out of 80 patients given the cutaneous tuberculin test by L. Cummins on known cases of tuberculosis a positive reaction was noted in all except three, a total of 96.2 per cent. Those that gave doubtful or negative tests were severely ill with advanced tuberculosis and died within three months. Von Pirquet says that in cases presenting clinical evidence of tuberculosis the reaction is positive in almost all instances after twenty-four hours. J. Claxton Gittings and John D. Donnelly conclude that a positive tuberculin reaction does not occur in the absence of a tuberculous infection. However, there are instances when a child with a tuberculous infection does not react to tuberculin; namely, first—incubation period of tuberculosis; second—acute tuberculous infection with marked constitutional symptoms; third—miliary tuberculosis, tuberculous meningitis, advanced

pulmonary tuberculosis and during certain infectious diseases such as measles, 100 per cent, scarlet fever 84 per cent, diphtheria 12 per cent and others as pneumonia, influenza, erysipelas, typhoid fever, and during tuberculin therapy. That a positive tuberculin test reveals a latent tuberculous infection is unquestioned. It is also positively conceded that a positive tuberculin test in an infant and a very young child usually implies an active tuberculosis. Tuberculosis of childhood, particularly between the ages of six to ten years, is a disease of the lymph glands involving mostly the tracheobronchial glands; apical lesions rarely occur before ten years of age. Slater found that the younger child showed involvement of the hilum glands and that the older child beginning with eleven years showed lung involvement. R. Gutterback states that hilum involvement is the most common form of tuberculosis in childhood. It is of great importance to appreciate that, at least in early tuberculosis of childhood, the hilum glands are the only seat of infection. This, therefore, will produce little or no physical signs other than the D'Espine. The parenchyma not being involved in incipient cases, physical signs will therefore be absent. If one awaits the presence of physical signs in the chest and tubercle bacilli in the sputum to diagnose tuberculosis in childhood he will only diagnose the advanced cases or those who have already evolved into the adult type and for whom the prognosis is very grave.

The roentgen-ray helps us but very little in the diagnosis of incipient hilum tuberculosis. It will show us the presence of infiltration with increased density and the presence of nodules, but it is difficult for the radiologist to differentiate the type of infection. It is well to remember that there are many causes for tracheobronchial adenitis, for instance in whooping cough, measles, bronchopneumonia, influenza, chronic bronchitis, lues, Hodgkins disease and asthma. Now to summarize the main points in diagnosis, I will say, that it is

generally accepted that, first, a positive tuberculin test in a child under ten years of age is of much significance and should be given due consideration; second, excluding the conditions noted in this paper a persistent negative tuberculin test indicates the absence of a tuberculous infection; third, excluding tuberculous lesions of the bone and other organs tuberculosis in children is essentially a tracheobronchial adenitis with little or no physical signs except for a positive D'Espine; fourth, the presence of tracheobronchial glands does not necessarily mean tuberculosis and a negative tuberculin test is of great importance in differentiating; fifth, children with incipient tuberculosis are not necessarily underweight, yet it is generally considered that malnourished and underweight children are potentially tuberculous; sixth, sixty-four to eighty-one per cent of school children between the ages of 5 to 14 years who give a definite history of contact become infected; seventh, a definite history of contact, the presence of enlarged tracheobronchial glands and a positive tuberculin test are sufficient grounds to make a diagnosis of incipient tuberculosis in children. Now with convincing statistics that the prevalency of tuberculosis is alarming, and with evidence that about 75 per cent of all children who come in contact with the disease actually becoming infected, surely we may conclude that the task before us is to prevent exposure to open or active cases.

Children showing the signs of glandular tuberculosis should be treated with heliotherapy as a prophylactic measure as early as possible. Natural sunlight is preferable but when it is not available artificial light therapy may be used. General physical therapeutics should be combined with general hygiene and prophylaxis against rickets and general glandular tuberculosis which always include pure cod liver oil. The preventorium or open air schools are of paramount importance. All anemic or pretuberculous, undernourished, actually

tuberculous, or rachitic children should have access to the open air school or preventorium. It has been shown that children who attend open air class, although they have fewer lessons, advance in their studies and often even surpass children who spend from five to six hours in the stuffy class rooms of the average schools. Midday luncheon, composed of nourishing food with a liberal amount of pure, wholesome milk, warm, well prepared gumbo soup and buttered toast is strongly advocated. Mental training of children must not be had at the expense of sound physical development. The greatest danger of tuberculosis in the weak, predisposed, anemic or underfed child comes with the approach of, and during the adolescence period. Prophylactic work in this type is particularly deficient. Long hours in badly ventilated class rooms, in college lecture halls, in store or warerooms and lack of proper recreation, irregular meals often insufficient in quantity and quality and unsanitary living in general are leading factors in the development of tuberculosis in the adolescent. According to statistics of the New York Tuberculosis and Health Association in 1924 there were 17 deaths from tuberculosis among boys aged from 10 to 14 years, 44 deaths among girls of the same age; 116 deaths among boys of 16 to 19 and 227 deaths among girls of the same age. Aside from the causes already mentioned the greater tuberculosis mortality among girls may be due to the foolish fad of trying to appear slender. It is suggested that many of the hard working girls who have good appetites follow these restrictions of undernourishment intentionally. As a result of such practices it is suggested that if they have latent tuberculosis or undergo prolonged contact with tuberculous persons, they are almost bound to acquire the disease. There is urgent need in our state for the erection, proper maintenance and management of preventorium, open air schools, and summer camps. A crusade against this foolish fad of undernourish-

ment on the part of our girls and general encouragement to drink more pure wholesome milk from tuberculin tested cows is of value at this time. In this instance it is of interest to mention a startling revelation made by a milk survey which was inaugurated by our very efficient state health officer a few months ago. Now listen, please, at the reading of this paragraph from his report. "The average per capita consumption of milk for the eleven cities was found to be exceedingly low, being only 33 hundredths of a pint. The highest per capita consumption was 56 hundredths of a pint". Now just think of this. Certainly we need to emphasize the importance of drinking an abundance of good wholesome milk. Physical condition also should be considered in a choice of occupation for young people. A thorough physical examination should precede the choice of any occupation for boys and girls. Annual periodic health examinations for every child and adult is the greatest safeguard against the development of tuberculosis in children and the most effective means of combating tuberculosis in adults. We must remember that the child of today is the man and the citizen of tomorrow.

Let us put our shoulders to the wheel and help the Board of Health push any well organized plan of disease prevention and more especially seek sufficient appropriations for our institutions for the prevention and cure of disease. Education of the masses in the methods of prevention of tuberculosis in infancy and childhood as well as in the adult will ultimately lead to victory.

DISCUSSION.

Dr. Henry Boswell (Sanatorium): Inasmuch as I do not know anything about tuberculosis and the control of it, I shall be brief in my discussion.

The control of tuberculosis in this State was studied very carefully many years ago. Dr. Garrison, who has just read this excellent paper, was a member of the Board of Health at that time and understands and knows the plans on which the work was originally started—to have our institution down at McGee as a center of education, bringing in the people as rapidly as we could

educate them to other methods of control of the disease. He has discussed here control of the incidence of the disease among the people of this country. Of course, we have not anything like the incidence of the disease in European countries, especially since the close of the war. Another thing that lowers the incidence of the disease in our State is our tremendous negro population. That statement will probably surprise you; but the incidence of tuberculosis among the negroes is nothing like the incidence of the disease in the whites, for the reason that a negro developing the disease dies quickly and is out of the way, while a white developing the disease may carry it for forty or fifty years, being a carrier all that time and spreading it to the young life.

It is quite possible, we know, that every case is not a childhood infection, because if you are exposed to an overdose of tubercle bacillus or any coccus you may develop the disease. There is no such thing as absolute immunity; if a sufficient dose of any germ is given at one time to any individual he will come down with the disease. That accounts for acute tuberculosis in adult life. Most of our negroes have acute tuberculosis, and they may not develop it until fifty or sixty years of age. He has not carried it from childhood; a slight infection today with him is a tremendous affair tomorrow.

The prevention of the disease in children is a widespread thing; it is a community proposition. If it is in the community the children are exposed to it, regardless of whether or not it is in the home. A physician in New York found that positive von Pirquet reactions were higher in the children where no positive history of contact in the homes could be elicited. It is the carrier that is carrying it about and extending it to them. Calmette's work offers probably one of the most pleasing looking things now. While the United States has not taken hold of it, except in isolated cases, yet the Dominion of Canada has on now a tremendous campaign over a large territory and in a large population to work out Calmette's beginning experimentation. Dr. Calmette has been working on this for more than forty years now, and it looks as if the old man in the evening of his life is going to give us something worth while. I get his reports every month from Paris. While it will take twenty-five or fifty years to decide how long the immunity he has established will last, yet it will be a wonderful thing. I heard one physician stand up and make this positive statement—when any man can make a physical examination and say this child has pulmonary tuberculosis, he is too far advanced to save; if a radiologist can say this child has pulmonary tuberculosis, he is too far gone to save.

But, as Dr. Garrison said, when you have a history of contact and evidence of a beginning sickness in the child, begin treatment against tuberculosis right away. In the children I have in the sanatorium we have only two that show positive physical signs in the chest, and both of them are hopelessly ill. They look like healthy children, but if we let them get up out of bed for a little while and walk over to the dining room, the next day they will be very sick children.

We have a wonderful lot of research work going on, and I wish I had time to tell you about it. The treatment of the disease in children is just what Dr. Garrison told you. Remember that codliver oil and sweet milk contain the vitamin (A) which is necessary not only for cure, but for prevention. He mentioned in the paper that probably the desire on the part of young girls to be slender is responsible for the increase in tuberculosis. There is no question that it is responsible. In five years in Mississippi the only increase in one age group in tuberculosis is in young people between the ages of fifteen and twenty-two—the age when they are out in automobiles riding around, stopping at drug stores to get a drink at meal time, the age when they want to be so miserably slender. There is no question about it.

Some of you fellows may get to think that I am more incompetent than I am as the head of your institution. From the State's standpoint, that institution is the beginning of a campaign to control tuberculosis. The disease will never be controlled by treating anybody's individual case. The treatment of the thing is incidental to its control, and the State is in it to control it in the future; otherwise the State has no business in it. We are spending thousands of dollars a year, and unless we treat it with the idea of its future control we are pouring money in a rat hole, and there is no sense in it. That institution is built ahead of the game. It is built to treat tuberculosis, because you fellows and the public demand that the individual case be treated. The first thing we should start out with is a preventorium, but if we did we could not get you fellows to send the little children to us. We need another thing, and that is a home for the incurable cases, particularly for the indigent negro, who is carrying the bacilli to your children and mine. Our sanatorium stands on that foundation, and we want you fellows to wake up to that paper presented by Dr. Garrison—that we are planning for the future. Remember, when you are applying to me to admit patients to that institution, when you are looking at the patient's side and your heart is bleeding for him, so is mine, more than yours, because I have fought the battle, I have been through the

game; but I have to look at it from the viewpoint of ten or fifteen years from now and scatter them over the State of Mississippi so that they will be apostles of better living. One of the doctors said yesterday the best helper he had in his community was a returned patient who went around and visited his patients and taught them how to live and how to take the cure.

I hope you will carry that thought with you, that the institution down here is the beginning of a campaign to control tuberculosis, that it is an educational institution. You come to me and say that you have a patient who is infecting a whole family; that he is dying with tuberculosis and you don't think I can cure him, but you want me to take him out of that community. But that is too late; he has already infected everybody. It will do no harm to let him stay six months longer and die among his own loved ones. The fellow we want is the curable case that will go back and be a missionary in his own community.

I want to express my appreciation to Dr. Garrison.

I heard it said yesterday that there are not more than four or five hundred cases in this State. I want to say that I have in my files down there, signed by you doctors of Mississippi, nine thousand reports of cases in which you found bacilli in the sputum and God knows how many more there are.

Dr. Garrison (closing): I don't know that I have anything further to say. Dr. Boswell has kindly emphasized everything I have gone over. We are shoulder to shoulder in this fight. I take a little pride in and like to remind the association that really this institution is yours anyway. The tuberculosis sanatorium is an infant of the State Medical Association. We started it down at Hattiesburg, at the meeting there. I was placed on the committee, Dr. Dan Williams and Dr. Leathers and I, and we fought the thing through the legislature, and it is really your child. As Dr. Boswell says, it is a mere beginning. I want to say in defense of Dr. Boswell's work (if it needs any defense; it does not from men who know the character of the work he is doing) that he is doing the best work in the United States today; there is no doubt about it. If any of you gentlemen have any sympathy with the criticisms that have been passed out here, you are entirely wrong, and you will regret it in the days to come. So let's get in this fight and put it over and prevent the little child and the infant from being exposed. That is the focus of this work.

I want to thank Dr. Boswell and all you gentlemen for the interest that you have displayed.

SUBPHRENIC ABSCESS.*

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Of the various late complications following a suppurative process within the abdominal cavity, a subphrenic abscess is one of the most feared. This abnormal condition was first described by Barlow, in 1845, who distinguished it from pulmonary lesions. Leyden, in 1886, again described the clinical picture of subphrenic abscess. Unfortunately, the clinical picture described by these two pioneers, very commonly, is considered the classical picture of subphrenic abscess today, that is, the liver dulness is covered by a tympanitic zone, which, in turn, is covered by a zone of dulness produced by a pleural exudate. The tympanitic zone is produced by a gas bubble in the subphrenic abscess floating on top of the purulent exudate. This description represents only a terminal stage of the condition, and if these signs are anticipated, many cases of subphrenic abscess will be overlooked, and also considerable time will have been lost in the treatment of the patient.

The first operation for subphrenic abscess was recorded by Volkman, in 1875. Since this time, much has been written concerning the subject, especially in regard to the anatomy, pathology, symptomatology, and treatment.

The anatomy of the subphrenic space was worked out by two French observers, Martinet, in 1895, and Piquands, in 1910. Barnard, in 1908, classified the subphrenic spaces in much the same manner as Martinet. Martinet described six subphrenic spaces, two located between the liver and diaphragm, one on each side of the mid-line and separated from each other by the falciform ligament. On the under surface of the liver were four spaces, one on the right, which is bounded on the left by the hepatoduodenal ligament, three on the left—one

in the lesser peritoneal sac, another beneath the liver anterior to the lesser omentum, and a perisplenic space located around the spleen. Barnard described five spaces—two on the right and three on the left; on the right an anterior subphrenic space located between the liver and the diaphragm and a posterior subphrenic space on the under surface of the liver; on the left, a space anterior to the lesser omentum, the perigastric space; a perisplenic space, and the lesser peritoneal cavity.

As these classifications did not seem to cover the cases clinically, several years ago Nather and I, while in Clairmonts Clinic, devised anotomically on the cadaver the following classification, which fits most cases of subphrenic abscess clinically:

In a surgical sense we can consider a subphrenic abscess as a localized inflammatory process in one of the spaces located between the diaphragm above and the transverse colon below. This area is divided by the liver into an infra—and a suprahepatic portion. The suprahepatic space is located between the diaphragm above and the superior surface of the liver below. It is again divided into a right and left space by the falciform, or suspensory ligament, the lower free edge of which is the round ligament which continues to the umbilicus. The coronary ligament, which is the reflexion of the peritoneum from the under surface of the diaphragm onto the superior surface of the liver, divides the right superior space into an anterior and posterior space. The left prolongation of the coronary ligament, which is known as the triangular ligament or left lateral ligament, passes backward to lie at the posterior edge of the left lateral lobe, so that on the left side there is only an anterior superior space. The right prolongation, or the right lateral ligament, passes somewhat anteriorly, dividing the right superior space into a large anterior and a small posterior space. The retroperitoneal space consists of that area enclosed within the

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limits of the coronary ligament, and is in contact with those portions of the liver and diaphragm which are not covered by peritoneum.

The infrahepatic space, which is that located between the liver above and the transverse colon below, is divided into a right and left inferior space by the round ligament and the ligament of the ductus venosus. The left inferior space is again divided into an anterior and a posterior space by the lesser omentum, the space lying posterior to the lesser omentum is the lesser peritoneal cavity, and that lying anteriorly is known as the left anterior inferior space.

ETIOLOGY.

The etiology of a subphrenic abscess is often varied. By far the greater percentage of cases, however, follow an acute infectious process somewhere within the peritoneal cavity. It is possible, though, to have an infection occur in the subphrenic space from some focus not within the abdominal cavity, or there may be extension from some adjacent viscus, which is also not within the abdominal cavity. As stated, however, suppurations within the peritoneal cavity are responsible for most of the cases. It might be said that any condition giving rise to either a general or localized peritonitis is potentially a subphrenic abscess. This, undoubtedly, is a very radical statement, but still I feel if we consider the possibilities offered us that fewer failures in diagnosis will be made.

Of the various suppurative lesions giving rise to a localized infection in the subphrenic space, an acute appendicitis, possibly because of its greater frequency, is the most common offender. The percentage varies considerably according to different observers. Fifield and Love, in a series of 78 cases, had 30 which followed an acute appendicitis, giving a percentage of 38.4. Lance had a percentage of 20, while 66 per cent of Clendening's cases were caused by appendicitis. The second most frequent intra-abdominal lesion which

is responsible for a subphrenic abscess is a perforation of either a gastric or duodenal ulcer. In Fifield and Love's series of cases this was responsible for 20 per cent. Suppurative lesions of the other viscera, such as the liver, gall-bladder, spleen, large intestine, and pleura are also responsible for subphrenic infections, but to a less degree.

Infection may gain entrance to the subphrenic space in a number of different ways. First, direct extension by way of the peritoneal cavity along the para-colic groove to the right kidney pouch. This is probably the most frequent mode of entrance. Second, through the lymphatics—either the peritoneal or retroperitoneal lymphatics. Third, by the portal system. In this type of case there is a pyelephlebitis with a production of a liver abscess which ruptures into the subphrenic space. Fourth, a rest abscess. Following a general peritonitis the remainder of the peritoneal cavity may be able to take care of the infection, but in the subphrenic space there remains a localized process which goes on to abscess formation. Ullman and Levy believe those infections which occur as the result of direct extension are located intraperitoneally, those which follow extension through the cellular tissues are retroperitoneal, and those which extend by the lymphatic system may be either intra- or extra-peritoneal.

There is some variance in the opinion of various observers as to the type of causative organism most frequently found in subphrenic abscess. Allen states that even though most of these abscesses follow an appendiceal infection, the staphylococcus is the offending organism in almost all cases. Fifield and Love found the colon bacillus in 33 per cent of their cases and an equal percentage contained staphylococci. Streptococci were responsible in about 1 per cent and about 2 per cent were sterile. Our experience has shown, however, that the *B. coli* is the most frequently found organism.

PATHOLOGY.

The pathology depends entirely upon the resistance of the individual and the virulence of the organism. Undoubtedly many cases of subphrenic inflammation and infection occur which go on to resolution and do not give the signs and symptoms of a subphrenic abscess. These, in my mind, are much more frequent than the cases of subphrenic abscess. Lee, in 1915, reported four such cases of subdiaphragmatic infection which did not go on to abscess formation. In all four cases there were sufficient clinical signs and symptoms to make a diagnosis of subphrenic infection. All, however, recovered spontaneously. In one, a first stage operation and a transpleural drainage was done. The patient's symptoms, however, cleared up before the second stage operation. Clendening reports another case of subphrenic inflammation which subsided spontaneously. In this same report he describes another unusual manifestation of a subphrenic inflammation, and that is, serous effusion in the subphrenic space. A patient with signs of subphrenic abscess was operated on for an acute cholecystitis. An empyema of the gallbladder was found, and in the subphrenic space between the liver and the diaphragm there was a large collection of serous fluid. Ever since my attention was directed especially to this condition by a case observed in 1922, which was described in detail in a previous publication, I have become convinced that an inflammation of a subphrenic space is not an infrequent accompaniment of a suppurative process within the abdominal cavity. It is certainly a much more frequent complication of a ruptured appendix than Allen would lead us to believe. He states that the incident of production of subphrenic abscess following appendicitis is between three and four-tenths of one per cent. One per cent of all cases of ruptured appendix is the figure given by Dexter as the incidence of subphrenic abscess.

To demonstrate this point further, I wish merely to report rather briefly a proven case which has been observed within the last six months. A female, aged 22, was admitted to the hospital because of abdominal pain. She stated that three days previously, shortly after her noon meal, she was taken with rather a severe pain in the epigastrium, which radiated to the right lower quadrant. Shortly after this she vomited. The pain persisted in the right quadrant, but within the last twenty-four hours she experienced a pain in the right upper quadrant also. There were no chills. The vomiting persisted. Physical examination revealed nothing of interest except a slightly distended abdomen, distinct tenderness and rigidity throughout the whole right side of the abdomen, for the most part over McBurney's point and in the right upper quadrant and in the right flank. There was also a rebound tenderness. Because of the rather typical history and physical findings, it was thought that the girl was suffering from acute appendicitis with an associated cholecystitis. Conservative therapy was decided upon because of the acute cholecystitis, and the patient was treated with rest in bed and hot applications to the abdomen. The acute symptoms rapidly subsided, so after about ten days a laparotomy was performed. The appendix showed all the stigmata of a recent infection, but much to our surprise, the gallbladder was apparently normal. In exploring the subphrenic space, however, a localized area, measuring about five centimeters in diameter, composed of fibrinous adhesions, was found between the under surface of the diaphragm and the liver. These adhesions were so 'fresh' that they could be easily broken with the finger and were undoubtedly the result of a subphrenic inflammation which was subsiding. They easily accounted for the symptoms and signs which we found at the time of the patient's admission to the hospital. The patient made an uneventful recovery.

A supposedly frequent accompaniment of a subphrenic abscess is a pleural effusion. This pathologic condition is only frequent in those cases in which the condition has been allowed to progress for a sufficiently long enough time that either toxins or organisms themselves, have passed through the diaphragmatic lymphatics into the pleural cavity. One should not wait until this complication develops before diagnosing a subphrenic abscess. Clute states that "it is almost always true that a simple serous fluid will be present in the chest when there is pus just beneath the diaphragm." In six cases reported by Dexter the diagnosis of pleurisy was made before the diagnosis of subphrenic abscess. He remarks: "Obviously, it is highly desirable to drain the abscess before the structures above the diaphragm are involved. In reviewing the subject, as well as the cases which have come under my own observation, it is striking to know how seldom a diagnosis is made early enough to accomplish this." Baumann states that an associated pleural exudate occurs in 20 per cent of cases. Those cases of subphrenic abscess which are complicated by a pleural effusion offer a much greater problem in diagnosis than those in which this complication is not present. The first two cases of subphrenic abscess which I observed I treated for several weeks as a post-operative pleurisy without any results.

A certain small percentage of subphrenic abscesses contain air. These, however, are either late cases or follow the perforation of either a duodenal or gastric ulcer. The air results from gas producing organisms, or it may escape from one of the hollow viscera. Lockwood states that it is found in about one-third of all the cases. While this figure may be true of the more advanced cases, it is certainly not true of the earlier lesions. The percentage given by Phillips is 50 per cent. Hodges has maintained that abscesses containing air are not common. Berman gives the incidence as 15 per cent. The earlier the diagnoses are

made the lower the percentage of abscesses which contain air will be observed. For this reason, very little significance should be placed upon this finding as a diagnostic aid.

Of the various subphrenic spaces most frequently involved in an inflammatory process, the small triangular shaped right, superior, posterior space is most important. It is the site of a localized inflammatory process in from 38 per cent (Fifield and Love) to 50 per cent (Nather and Ochsner) of all subphrenic abscesses. Of those subphrenic abscesses occurring following a ruptured appendix, the right posterior superior space is involved from 50 to 80 per cent of cases. The right anterior superior space is the space next most frequently involved, and this is followed in frequency by the right extraperitoneal space. Very commonly, associated with an abscess in the right posterior superior space, is also an abscess in the right inferior or infrahepatic space. This combination I have seen in three cases. A similar case was described by Straus in 1923.

SYMPTOMATOLOGY AND SIGNS.

The early symptoms of a subphrenic inflammatory process are very vague and indefinite. Following a suppurative or an acute inflammatory process in the abdominal cavity, the patient does not get along as well as one would naturally expect him to do. The temperature, instead of falling to normal, may persist and may, after a period of time, slightly rise. There may be little or no alteration in the pulse rate. A slight leukocytosis is practically always present. In those cases in which the right posterior superior space is involved there is a localized tenderness over the tip of the twelfth rib, which usually remains constant. The patient may complain of pain in this region, or the pain may be referred to the chest. If these physical signs and symptoms persist over a period of days and remain constant, a positive diagnosis of subphrenic infection may be made. There

is an early and associated immobility of the diaphragm, later to be followed by an elevation of the diaphragm, which may at times reach up as high as the level of the third rib. As the condition progresses there develops a pleurisy with friction rub at the base of the lung which may be followed by a pleural exudate. It is at this stage that a diagnosis of pleurisy with effusion is most commonly made.

The roentgen-ray is of great assistance in making a diagnosis of subphrenic abscess. Pancoast, who reports sixteen cases of subphrenic abscess in which the diagnosis was made roentgenologically, states that in diagnosing this condition by means of the roentgen-ray it is of utmost importance to have a good clinical history. As brought out by LeWald, Pancoast, and O'Brien, the roentgenological findings are, briefly, as follows: There is an elevation of the diaphragm on the affected side, much higher than is usually found in cases of simple pleural effusion. The diaphragm is immobile. There may be some retraction of the lung. In those rare cases in which air is found in the subphrenic space the diagnosis may be easily made, because of the absence of shadow between the pus below and the diaphragm above. In order to make use of this phenomenon, W. H. Stewart, of this country, and Schintz, of Switzerland, have even advocated the injection of aid into the subphrenic space in order to visualize the abscess. This procedure, however, is not without danger and should not be attempted.

Douglas has emphasized the importance of taking radiographs in either the sitting or the standing position. If the patient's condition is such that this is not feasible, an antero-posterior plate should be made with the patient lying on the unaffected side. In this way, more can be told about the position of the diaphragm than an antero-posterior view with the patient lying on his back. In spite of a suggestive history and in spite of positive roentgen-ray findings, a diagnosis of subphrenic abscess

is very frequently delayed until very late, as illustrated by a case reported by Cottle in 1923. The patient had had an appendectomy and excision of a gastric ulcer, following which he developed symptoms and signs of a right sided pleural lesion. Roentgenograms showed, however, a high diaphragm on the affected side. The diagnosis was disputed for three and a half months, and it was not until four months after the original operation that a diagnosis of subphrenic abscess was made, which abscess was drained successfully with complete cure of the patient.

In those doubtful cases of subphrenic abscess one is justified in attempting an exploratory puncture in order to see if fluid is within the subphrenic space. Ullman and Levy advocate an exploratory aspiration. Hirsch reports a case of a physician in whom twenty-three exploratory aspirations were done without any result. On the twenty-fourth aspiration pus was obtained. He emphasizes the fact that if aspiration is to be done, that it should be done over the area of relative dullness, which is that produced by the fluid, and not over the area of absolute dullness which is produced by the liver. Allen and Douglas take a slightly more conservative attitude concerning exploratory aspiration. They believe that in the doubtful case one is justified in aspirating. Lockwood and Hodges, however, condemn the practice of promiscuous needling, because of the danger of infecting either the uninvolved pleura or peritoneum. I also feel that exploratory aspiration should never be carried out, except to determine the character of an exudate within the pleural cavity. No attempt should be made to aspirate a suspected cavity beneath the diaphragm, unless everything is ready for operation, and then every precaution should be taken to avoid injuring or penetrating the pleural or peritoneal spaces. In order to do this, it is advisable to insert the aspirating needle, which is attached to a dry syringe, in the posterior

axillary line at the level of the spinous process of the first lumbar vertebra. The needle is directed upward and backward at an angle of less than forty-five degrees. Aspiration should be carried out during the introduction of the needle, so that there will be no danger of encountering an abscess and passing through it unrecognized. Under no other circumstances should an exploratory aspiration be done.

PROGNOSIS.

The mortality of all the subphrenic abscesses reported to date varies from 23 to 100 per cent. Fifield and Love report a mortality of 50 per cent in all of their cases. Of the fifty-nine cases operated on there was a mortality of 32 per cent. Lockwood states that from 85 to 100 per cent of those not operated on die, whereas of all cases taken, whether operated or not operated on, the mortality is 56 per cent. Most patients who have been treated surgically have a mortality from 23 to 40 per cent. The following percentages have been given by the various observers: Hodges, 50 per cent; Eicher and Kidzey, 50 per cent; Baumann, 66 per cent; McEachern, operated, 33 per cent, not operated, 75 per cent; Tuft, 66 per cent; Lotsch, operated, 33 per cent, unoperated, 100 per cent.

From these figures it can be seen that under the present method of treatment the mortality in subphrenic abscess is extremely high. It is because of this appalling mortality that the abdominal surgeon has come to fear the development of a subphrenic abscess. What is the cause of this high mortality? In analyzing the cases reported in the literature one is immediately impressed by two considerations: First: That by far the majority of cases are advanced and show extreme pathology at the time the diagnosis is made. This means that the patient's resistance has been so reduced by a long continued septic process and that a recovery is not as likely as in an individual whose illness dates back a comparatively short time. Were the diagnosis made and proper therapy instituted earlier this high mortality would be

reduced to a remarkable degree. The second fact that impresses one is that many of these patients operated upon develop signs and symptoms of either an empyema or a peritonitis, which, undoubtedly, is a factor in the cause of death. If the involvement of the pleural and peritoneal cavities is a cause in raising the mortality, is there any way in which we can prevent complications?

TREATMENT.

The treatment of subphrenic abscess may be divided into three different types:

1. Prophylactic. The prophylactic treatment consists of placing all patients with a suppurative process within the peritoneal cavity in the Fowler's position in order that the infectious material may gravitate into the pelvis. Large amounts of fluids should be given, either under the skin or intravenously, which are, in turn, secreted into the peritoneal cavity, diluting the infectious material and washing the purulent material into the pelvis. The delayed or conservative treatment of those cases of ruptured appendix seen after thirty-six to forty-eight hours will prevent many cases of subphrenic abscess. This has been emphasized by Fifield and Love. They found that in 228 cases treated conservatively at the London Hospital a subphrenic abscess occurred only in one case, while 1109 cases subjected to immediate operations, 7 were complicated by subphrenic abscess. During intraperitoneal operations it is of utmost importance to protect the general peritoneal cavity in order to prevent it from being soiled. Adequate drainage, especially in those cases where there is a localization of the process should be performed, which will undoubtedly reduce the incidence of a subphrenic abscess formation.

2. Conservative treatment: It is essential to diagnose a subphrenic infection as early as possible, so that the proper therapy may be instituted. In the case of a patient who has recently had a suppurative process within the peritoneal cavity,

and whose condition does not clear up as well as might be expected, and one who presents the early signs of a subphrenic abscess, a diagnosis of a subphrenic inflammation may be made and conservative therapy instituted. The conservative treatment consists of keeping the patient as quiet as possible; immobilizing the affected side of the chest with adhesive plaster; applying heat to the affected side, either by electric pads, hot water bottles, or diathermy; and the building up of the general resistance of the patient. By far the greater number of subphrenic infections will respond to this therapy. Fewer will go on to suppuration if the therapy is instituted early, instead, the inflammatory process will clear up by resolution.

3. Treatment after the development of an abscess: Once a subphrenic abscess has developed, as evidenced by the hectic type of temperature, marked increase in leukocytes, and increase in amount of tenderness over the affected area, which may or may not be accompanied by an edema, drainage of the abscess is indicated. The proper operative procedure employed depends entirely upon the location of the suppurative process. In the past, by far the greater number have been drained by the transpleural route, because of the high location of the abscesses, which virtually lie within the thoracic cage. Those abscesses lying anteriorly, and which tend to point anteriorly, have been drained through an anterior or trans-abdominal approach. Some few have been drained through the loin. While anatomically the transpleural and trans-abdominal routes may be the ideal procedures, they still have certain definite disadvantages, in that they require traversing one of the large serous cavities. While it is true, theoretically at least, that an infection of the serous cavity may be prevented by performing the operation in two stages, still statistics have shown that the results obtained from the use of these approaches are from satisfactory. Fifield and Love had a mortality of 43.7 per cent in those cases which were drained trans-

pleurally, a mortality of 23.8 per cent in those drained through the anterior abdominal wall, and a mortality of 16.7 per cent in those drained through the loin beneath the twelfth rib. Lockwood, who states that the mortality of all the cases of subphrenic abscess is between 23 to 40 per cent, believes, however, that it should not be higher than 16 per cent. As a protection against the development of empyema, he advises an intercostal incision, following which the intercostal muscles are sutured to the diaphragm. The skin edges are then mobilized and also sutured to the diaphragm. In this way he believes that not only can a wound phlegmon be prevented but also an infection of the pleural cavity. Orsos, in Germany, advocates a similar procedure in that in place of the one layer suture he used two layers, and believes in this way to be able to prevent an empyema. He reports two cases, both of which were cured.

Within the past year McEachern has advocated the closed method of drainage, which consists of inserting a tube into the abscess cavity, usually in the tenth interspace, an attempt being made to keep the connection air tight. The cavity is irrigated with Dakin's solution, according to the Carrel technique. He reports two cases, both of which were cured. One patient, however, developed an empyema following the drainage of the subphrenic abscess, which probably was due to an infection introduced into the pleural cavity at the time of the drainage. This is one of the great disadvantages of the method, because it is impossible to tell whether there are adhesions between the two layers of parietal pleura or not. McEachern mentions another disadvantage; that is, multiple abscess pockets may be overlooked. He believes, however, that in the severe cases that the operative procedure is of decided value.

THE RETROPERITONEAL APPROACH.

In 1923 Nather and I described an approach which is applicable, especially for

those abscesses located in the right superior posterior space—which is the most frequent location for a subphrenic abscess. The success of the retroperitoneal operation depends upon the fact that the peritoneum on the under surface of the diaphragm is only loosely attached to the diaphragm; also, that the peritoneum, as is reflected down from the under surface of the diaphragm is continuous below with the renal fascia. This loose attachment of the peritoneum to the under surface of the diaphragm is present in normal individuals and can be readily demonstrated on the cadaver, permitting an easy separation of the peritoneum from the diaphragm. This can be even more readily done in those cases where there is an inflammatory process in the subphrenic space, because of the edema which is located sub-peritoneally. The technique of the retroperitoneal operation is, briefly, as follows:

A skin incision is made over and parallel to the twelfth rib; the twelfth rib is resected subperiosteally throughout its whole length. A transverse incision through the soft parts is made at the level of the spinous process of the first lumbar-vertebra. In employing a transverse incision at this level the pleura will be sure to be avoided. The incision is carried through the musculature down to the renal fascia. The renal fascia is followed upward, above it is continuous with the peritoneum. Usually the free edge of the liver may be seen through the peritoneum. At this stage of the operation it is desirable to insert a needle into the subhepatic space, in order to determine whether an infra-hepatic abscess in the right inferior space is present or not. If pus is obtained, the abscess is not drained, but this part of the wound is packed until an exploration of the supra-hepatic space has been made. Wide, broad, blunt retractors are now placed in the upper edge of the wound elevating the edges of the ribs and diaphragm. With the index finger of the right hand the peritoneum is separated from the under surface of the diaphragm. This occurs

without any difficulty. The surface of the liver is explored with the index finger, and as soon as the abscess cavity, which can be easily felt, is located, the wall of the abscess is broken through with the finger, thus allowing evacuation of its contents. Two large fenestrated rubber tubes are introduced into the cavity and brought out through the wound to serve as drainage tubes. In those cases where pulmonary symptoms have been present before, it is desirable, before draining the supra-hepatic abscess, to aspirate the pleural cavity—which can be easily done in the costophrenic angle. If no pus is obtained at this aspiration nothing further is done as far as the pleural cavity is concerned. If, however, pus has been obtained from the pleural cavity, the empyema may be drained at the same time by opening the costophrenic angle just above the diaphragm. A fenestrated rubber tube should then be inserted into the pleural cavity, also.

The retroperitoneal operation is the operation of choice in those cases in which the abscess is located posteriorly, which is, as has been stated, the most frequent site of abscess formation. By this procedure the abscess is drained without traversing either of the large serous cavities, thus obviating the danger of either a peritonitis or empyema.

For those cases of subphrenic abscesses located anteriorly a similar approach, described by Clairmont, and spoken of as the pre-peritoneal operation, is the method of choice. This is carried out through a ten centimeter long incision over and parallel to the anterior costal arch. All the structures are divided down to the peritoneum. If there is an abscess present, either in the inferior or superior space, the peritoneum shows a very characteristic change in that it is edematous and friable. The peritoneum is then dissected upward from the under surface of the diaphragm in a way similar to that done in the retroperitoneal operation. Broad blunt retractors are

placed above, elevating the diaphragm and the costal arch. After a separation of the peritoneum from the under surface of the diaphragm for a short distance, the inferior edge of the liver usually becomes visible. At this stage it is desirable to aspirate the infrahepatic space, in order to determine whether an abscess is present in his space or not. The superior surface of the liver is then explored with the finger, and after locating the abscess, it is drained, as in the retroperitoneal operation, by breaking through the pyogenic membrane with the index finger. The advantages of the preperitoneal operation are the same as those of the retroperitoneal operation. If pus is not located by means of either one of these approaches, very little harm has been done the patient. The wound can be sutured, and the subphrenic space explored through the other approach.

CONCLUSIONS.

1. Subphrenic infections are not infrequent, and follow a large percentage of intra-abdominal suppurative processes, chiefly appendiceal.

2. By far the greater number of subphrenic inflammatory processes subside, especially if proper therapy is introduced early.

3. Careful clinical observation of a patient who has had a suppurative process within the peritoneal cavity will usually suffice to make a positive diagnosis of a subphrenic infection when such occurs. The roentgen-ray is a valuable aid in diagnosing the condition.

4. The treatment of a subphrenic infection is divided into prophylactic, conservative, and radical methods. Most cases of subphrenic infection respond to conservative treatment.

5. In a subphrenic abscess an uninvolvement pleural or peritoneal cavity should not be opened.

6. The retro- and pre-peritoneal operations are the procedures of choice, because of the avoidance of the large serious

cavities and the lack of shock caused by the operations.

7. The mortality following the retroperitoneal operations for subphrenic abscess has been 6 per cent.

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DISCUSSION.

Dr. J. A. Danna (New Orleans): I believe you will all agree with me in that it is more difficult to discuss such a comprehensive monograph as the one that has just been read and my only reason for rising to do so is that I have been announced as the discussor.

I think the paper is timely because it teaches us a lesson, teaches us that we are passing up diagnosing these cases and waiting until they are so far advanced that it very easily accounts for the bad name that a subphrenic abscess has. Whenever one speaks of a subphrenic abscess it implies a very sick patient: this should not be the case if the patient who is apt to develop a subphrenic abscess receives the personal attention that he should be given. Whenever a patient (as stated in the paper) has an abdominal infection and will not clear up, does not improve as he should, has a little fever, etc., look for evidence of a subphrenic abscess. If the paper does nothing more than call attention to the fact that many of these cases die because they are not diagnosed early and makes us watch more carefully in the future for this condition, it will have accomplished a great deal.

The doctor brought out the fact that pleural effusion complicates these cases very often and that is where we go astray. When dealing with a pleural effusion we feel that the condition is intrathoracic, above the diaphragm—we go on and treat the patient above the diaphragm and the condition gets worse.

Speaking of aspiration. The doctor cites a case where aspiration was done twenty-four times before finding pus. The reason why repeated attempts so often fail to demonstrate pus is because it is very hard to get a needle large enough sometimes for pus to come through. Do not be satisfied even after you have stuck a large needle in a supposed cavity if no pus is with-

drawn; do not take it for granted there is no pus; the pus may be of a consistency that will not go through the needle.

I have had some experience with the incision the doctor speaks of in approaching these cases through the costal arch. Make the incision on the costal border, split your soft tissues down to the rib and then sort of peel them from under the ribs; you will find that your peritoneum and possibly some of the fibers of the diaphragm will separate easily and you can reach up with the finger and get at the abscess between the diaphragm and liver very readily. I am sorry Dr. Ochsner did not go more into detail about that retroperitoneal incision. We need not grope about getting into this abscess behind; the technique worked out by Dr. Ochsner in 1923 is a very nice method which gives you a clean job and a very thorough result.

As I said a while ago, it is rather difficult to say anything after everything has already been said.

Dr. I. M. Gage (closing): I have nothing in the way of discussion to add, but wish to thank the Society for the extension of time granted to complete the reading of Dr. Ochsner's manuscript, and also thank Dr. Danna for his discussion.

After the meeting, to anyone who is interested, I will be more than pleased to demonstrate the retroperitoneal incision on the cadaver.

BERIBERI ("MALADIE DES JAMBES") IN LOUISIANA.—Four patients from the rice belt are reported on by Scott and Herrmann, sick with what they termed "maladies des jambes." Of these, two had definite beriberi, while in the other two the picture of an acute nephritis predominated. There were ten cases in the parish prison besides the four true cases of beriberi received at the charity hospital. One prisoner died on the way to the hospital from the jail and two were sent to Baton Rouge. Eight of those detained are said to have been relatively mildly affected and recovered when the diet was changed. Altogether, eight prisoners were admitted to the hospital with edema and questionable cardiac lesions, but three were undoubtedly not to be classed as having true beriberi. It may, however, be assumed that preexisting heart disease was adversely influenced by the nutrition. They conclude that "maladie des jambes," the nutritional disturbance frequently encountered among the rice farmers of Louisiana, is identical with the neurodegenerative syndrome classed as the "wet" type of beriberi in oriental countries or the sporadic outbreaks of neuritic edema in prisons, asylums, on shipboard, or in war. The outbreak of jail beriberi and aggravated heart lesions in the parish prison was provoked by a monotonous diet, which, though plentiful enough, was deficient in essential vitamin constituents. Though authorities may still be divided on the true etiology, the authors consider a deficiency of vitamin B in the diet as the principal cause.—*J. A. M. A.*, 90:2083, 1928.

THE TREATMENT OF BURNS.*

R. A. CUTTING, M. D.,

NEW ORLEANS.

The responsibility of dealing with cases of burns is a legacy which has been handed down by tradition to the general surgeon—a bequest which, though apparently logical enough, he has too frequently accepted with diffidence or even reluctance. The temptation to esteem the spectacular and avoid the commonplace has operated to retard the progress of knowledge with respect to burns as in few other surgical conditions.

DEFINITION.

Burns have usually been defined as lesions caused by raising the temperature of a part to a degree incompatible with its normal functioning, or, more comprehensively, as a special type of wound due to the action of heat, chemicals, electricity, or radiant energy. To this conception, as will be shown presently, one must add, as a result of the contributions of various fairly recent investigators, that toxemia is also an essential part of the picture.

CLASSIFICATION.

The classification of burns has been both according to the causative agent, as mentioned above, and also according to the depth of the wound; most commonly three degrees of burns are described in the United States: (1) erythema, (2) bleb formation, and (3) eschar; occasionally Dupuytren's classification into six degrees is preferred: (1) erythema, (2) dermatitis, with bleb formation, (3) sub-total destruction of the skin, (4) complete destruction of the skin, (5) destruction of the superficial structures to, and including, the muscular layer, and (6) carbonization of muscles.

It is at least questionable whether the action of radiant energy on tissues should be described as a burn. Probably such

lesions should be given a chapter of their own.

Electrical burns have been shown, however, by Schridde to present identically the same histological picture as burns caused by great heat, and accordingly fall properly within the classification.

Chemical burns are not much different from electrical-thermal burns histologically, and are treated, except for minor modifications, in the same way. As side effects, acids combine with body proteins to form acid-metaproteins, while alkalis form alkali-metaproteins; acids have the power markedly to soften connective tissue and epithelium, and alkalis the power to combine with tissue fats to form soaps; furthermore, both acids and alkalis are intensely hygroscopic, one acid, sulphuric, being able to withdraw hydrogen and oxygen from organic compounds to leave carbon only and thus give the phenomenon of charring. But from a practical point of view these peculiarities of chemical burns are of no particular significance. There is, however, one respect in which the effect, and consequently the treatment, of these lesions varies from type, and that is, that while the immediate destructive action of thermal burns ceases as soon as the burned part has had a chance to cool, the action of a chemical caustic, unless therapeutically stopped, is prolonged for a variable period of time until neutralized by the fluids coming to the tissues by way of the blood stream.

The classification of burns according to depth of penetration, though useful in a general way, is clinically often not very satisfactory, mainly for two reasons: (1) The measure of the constitutional severity of a burn is frequently not so much its depth as its location and its surface area, and (2) the measure of the local severity is the ability of the lesion to heal without impairment of function, *i. e.*, without scar formation, which, as Bancroft and Rogers, Goldblatt and others have shown, depends upon the destruction, not so much of the skin itself, as of the hair follicles

*Read before Orleans Parish Medical Society, January 23, 1928.

which dip below the skin proper. In other words, a so-called third degree burn in the usual classification will go on to extensive scar formation if it is so deep as to destroy hair follicles, but relatively complete restoration of the integument will be the rule if undestroyed hair follicles remain to provide small islands of epithelium from which epidermization may proceed. Accordingly, it has been proposed to classify burns clinically in only two degrees: (1) Those which are so superficial as to have no marked tendency to scar formation, and (2) those in which the depth of the lesion precludes such a possibility; whether such a classification is important enough to supersede the older ones remains to be seen.

ETIOLOGY.

The etiology of burns, perforce, has been already discussed in part, but with respect to age and sex incidence it is interesting to note that at least on the basis of mortality statistics taken from the figures compiled by the Metropolitan Life Insurance Company females seem to be affected more than males in the ratio of three to two, more males dying from burns from birth up to the age of three, more females from 3 to 35, males and females about equally again for a number of years, and later, in the old age period, more females than males. Perhaps this preponderance of fatal burns amongst females is not in accordance with what one might expect, but it can doubtless be explained satisfactorily in connection with the character of clothing worn, woman's duties about the kitchen and the stove, and similar considerations. More burns occur in the winter than in the summer months, rather obviously because of the necessity for more numerous and hotter fires during cold weather.

PATHOLOGY.

The local pathological histology of burns need not be repeated here; it is so classical as to constitute the type picture of inflammation, but the constitutional reaction following these lesions is

too little understood, and such knowledge as we have concerning it is altogether too infrequently emphasized. It has always been appreciated, of course, that the severity of a burn may be, and frequently is, out of all proportion to the amount of tissue actually destroyed, but just why this should be has been considerable of an enigma. In the past, surgery has been content simply to dismiss the constitutional reaction with the term toxemia. Because of certain researches, however, mostly of fairly recent date the surgeon of the present has been enabled to appreciate the nature of this reaction more intimately than his predecessors. It appears from the reports of a number of investigators, notably Robertson and Boyd and Ravdin, that the burning of skin causes the local formation of a toxic product or toxic products which remain confined to the region of the lesion for a matter of eight hours or so, but, unless prevented from so doing, thereafter find their way into the blood stream, enter into or become absorbed by the red corpuscles and produce an effect some aspects of which have been pointed out, but which is not completely explained as yet. The evidence is somewhat as follows:

If the blood returning from the burned extremity of an experimental animal be diverted into the blood stream of a normal animal, the latter soon thereafter develops toxic symptoms the counterpart of those it would have manifested had it been burned itself.

If, instead of injecting whole blood, only red corpuscles are transferred from the burned animal to the normal one the reaction occurs as before, but if plasma alone is given, no reaction takes place.

If an area of burned skin from an experimental animal be removed completely and grafted onto a normal animal within 8 hours, the second animal, and not the first, develops the toxemia; if this is done, however, after the lapse of a longer interval both animals suffer.

The nature of the toxin elaborated by the burning of skin is unknown, but it has been definitely shown to be produced only when living skin is burned; the provisional assumption is made that it consists of primary and secondary proteoses, and further analysis into thermolabile and thermostable constituents had been attempted.

Organic pathology resulting from the toxemia has been sought grossly, microscopically, and chemically.

Cases of rather severe burns characteristically present the blood picture of concentration, which is most conveniently indicated and measured by the procedure of hemoglobin estimation. Underhill reports increases to 145 per cent of normal and Ravdin to 125 per cent, figures which call to mind the similar concentration observed in high intestinal obstruction, war gas poisoning, fulminating influenza, and Asiatic cholera; indeed the blood concentration may easily be the cause of death in cases of burns, the increased viscosity leading to impairment of the circulation, diminished oxygen-carrying capacity, lowering of temperature, and suspension of the vital activities. Underhill believes that this phenomenon can be explained on the basis of an outpouring of tissue fluid through the partially devitalized walls of the capillary bed in the region of the traumatism.

The gross and microscopical pathology of the various body organs has been, on the whole, rather unproductive in cases of burns. Robertson and Boyd several years ago reported that they found evidences of parenchymatous degeneration in the various abdominal organs, but Weiskotten and Greenwald and Eliasberg, reporting on human autopsies, and Olbrycht, working with experimental animals, were unable to confirm these findings. Greenwald and Eliasberg, however, working with rabbits in an attempt to find a possible explanation for an extreme hypoglycemia which they had observed in two clinical cases of burns which had died (one had no

blood sugar at all, the other only 30 mg. per 100 c.c.), have described certain changes in the adrenal glands which are interesting in that they suggest diminution of adrenalin secretion as a part of the picture of burn toxemia; for the first 24 hours following experimental burns they found evidences of increased cellular activity in the adrenals of their animals accompanied by hyperglycemia, which they interpreted as being caused by excess stimulation. Olbrycht previously had found pathology of the adrenals in animals subjected to burns, consisting of hyperemia, ecchymoses, and reduction or total loss of chromaffin substance and lipoids. Hypoglycemia, if due to exhaustion of adrenal cortex, should be amenable to treatment with hypodermic injections of adrenalin, and this should be borne in mind, together with the suggestion that according to the experimental data, such therapy would be contraindicated during the first 24 hours following burn trauma.

Acidosis, it should be mentioned, is apparently no essential part of the toxemia incident to burns; the carbon-dioxide combining power of the plasma is normal. Perhaps it should also be added, at this point, that burn toxemia does not characteristically lead to a nephritis; albuminuria, though usually present, is probably only incidental to blood concentration, the kidneys being able only imperfectly to function under such conditions, though when the concentration is overcome they function again in a perfectly normal manner.

Various observers, notably Underhill and Robertson and Boyd, have reported disturbances of protein metabolism as evidenced by high non-protein nitrogen and urea blood values; the disturbance noted here is usually not particularly striking and can possibly be explained on the basis of blood concentration.

Underhill has made the very interesting contribution that blood chlorides are decreased in all but minor burns, and that

TREATMENT.

the blood chloride decrease is associated with a decrease of urinary chloride output. He goes to some length to show that this phenomenon cannot be explained on any ordinary grounds, such as diet, fever, vomiting, alkali therapy, altered renal threshold, blood concentration, or transudation at the site of burn, but rather that it is in all probability a protective phenomenon. The sodium chloride is stored in the tissues where it can be made to serve the purpose of combining with the primary toxic materials elaborated by the burned area before there has been an opportunity for the latter to produce damage. He thinks this is analogous to chloride retention in pneumonia, and makes the observation that just as in pneumonia, after the crisis, there is a large chloride elimination in the urine, just so in burns there is a readjustment of chlorides with marked urinary excretion following the separation of burn sloughs. He also quotes Hayden and Orr's observation of chloride retention in intestinal obstruction as another example of a similar mechanism.

PROGNOSIS.

As to life, considering the moderately deep burns, the prognosis is probably favorable, other things being equal, in cases where less than 1/10 of the total body surface is involved, guarded where 1/3 or more has been burned, and grave where 2/3 is affected. This is, however, only the most general sort of an estimate, burns about the head, neck and shoulders being more dangerous to life than similar ones on the extremities, children being much less resistant than adults, and much depending, in any case, upon the general bodily resistance of the patient and the institution of proper treatment.

As to scar-formation and contracture deformities, deep burns have a relatively unfavorable prognosis, but much can be accomplished by early skin-grafting, the prevention of serious infection, and other therapeutic measures.

The question of prophylactic treatment is a large one, far too ponderous for a discussion such as this, and it must be dismissed with the single suggestion that the crux is (1) education as to burn hazards, on the one hand, and (2) active protection for those constantly exposed to unusual hazards, on the other, especially those who, either due to lack of intelligence or the presence of organic lesions are particularly exposed to danger, specifically the young, the insane, and the locally or generally anesthetic.

There should be no routine treatment for burns. Rational therapy here, as elsewhere in medicine, depends upon individualization of the case, a clear understanding of the pathology present in the specific instance being the indication now for one modification and now another.

First degree burns, i. e., those characterized by erythema without vesication, if they be of no considerable extent, produce no systemic reaction of moment and, indeed, cases developing them often do not seek medical aid. For such cases as do call for treatment picric acid, either in aqueous solution or as an ointment probably best meets the indications, it being at the same time both slightly anesthetic and antiseptic.

Second degree burns and mild third degree burns, i. e., those in which scarring is not expected to be extensive, may be grouped together; according to their extent they may be mild, severe, or very severe; it must be constantly borne in mind that children bear burns poorly. The treatment should begin immediately after the patient is seen, and obviously the first indication is to prevent the further or continued action of the exciting cause. Usually in cases where clothing has caught fire resulting in a burn the flame will have been extinguished before the patient is seen, but it is not an incident of very great rarity to see patients rushed in excitement into hospitals with their clothing still smoulder-

ing. On the other hand, where chemical burns are concerned the caustic will not usually have completely ceased to act at the time the patient comes under observation; no time should be lost in preventing the possibility of further chemical destruction. Davidson has gone to some length in determining the proper procedure in the case of the acid and alkali burns, and he has come to the conclusion as the result of carefully controlled animal experimentation that dilution of these particular caustic agents with quantities of water gives decidedly better results than any immediate attempt to neutralize them, base with acid and acid with base.

Patients with extensive burns will usually be found in a greater or less degree of shock, burns about the face, neck, and shoulders being particularly prone to produce this condition. The exact mechanism of burn shock is not well understood; it is presumably caused by an overwhelmingly violent stimulation of sensory nerves, and individual idiosyncrasies are considerable, some patients being prostrated by relatively mild trauma, and vice-versa. At all events shock is easily recognized by its symptoms, sub-normal temperature, rapid, running pulse, low systolic blood-pressure, and, in the more severe cases, cold clammy skin and coma or only partial consciousness. However severe the local lesion, to attempt its active treatment with a patient in shock is to jeopardize the patient's chances of recovery by overlooking, medically, the forest for the trees. The indications here are to protect the burned area from infection and mechanical trauma by sterile dressings if possible, but clean sheets or the like will do otherwise, and get the patient immediately to some place where he can be kept warm, be provided with an abundance of fluids, by mouth, proctoclysis or hypodermoclysis, according to the needs of the case. He should be given morphin in sufficient amounts and sufficiently frequently to relieve him of his pain and keep him quiet. The treatment of the local lesion begins only when reaction

from shock has definitely set in; milder cases of burns can, of course, be attacked locally without delay. The indications for local treatment are, in addition to those already mentioned, *i. e.*, protection from infection and further trauma, (1) provision for taking care of the copious exudate which may be expected from the burned area, (2) the relief of local pain, (3) the favoring of rapid granulation, and (4) whatever can be done to forestall the absorption of toxins from the burned area into the blood stream.

The clothing should be cut away, soaked away in water, or otherwise removed in such manner as will add as little trauma as possible to that already existing; gasoline is often useful in cleaning up badly contaminated areas, since it is fairly grateful to the painful lesion and at the same time somewhat antiseptic. At various times debridement has been put forward as being indicated following the preliminary toilet, as, for instance, by Brager, Lieber, and Willis; for this purpose, the patient being placed under a general anesthetic and the traumatized tissue being either cut away or completely scrubbed away; this treatment is perhaps of value in certain unusual cases, but routinely, while it meets the indications for local treatment as given above in an ideal manner, it carries with it two side effects which usually negative its more obvious advantages, (1) the first is that it adds operative shock to that of the burn, (2) the second that in extensive burns, *i. e.*, those involving considerable areas of the body, the added probability of scar-tissue formation and subsequent deformity following operative trauma probably rarely justifies the procedure.

One of the favorite older methods of treatment was to cover the lesions with gauze compresses wrung out of mild antiseptic solutions in an attempt to keep the wound sterile; this method favors exudation from the burned areas, fails to prevent the absorption of toxins, often succeeds only in providing a warm moist

nidus for the development of bacteria, more frequently still provides extra trauma by repeated dressings, and almost always fails to make the patient comfortable. The addition of novocain solution to these dressings has been advocated to control pain. As a result of the late war the method of spraying the burned area with some preparation of paraffin came to the fore; in civil life various proprietary preparations containing paraffin as a base have been used, and while they usually do succeed in making the patient ultimately comfortable often added temporarily to his discomfort by the heat used in melting the preparation, run the danger of developing a severe infection under the paraffin coating, and inevitably failed to prevent the absorption of toxins and the exudation of fluid.

In 1925 Davidson proposed the so-called "tannic acid treatment" of burns which seems to be such a distinct therapeutic advance over previous methods that any further recital of the many modifications of the above mentioned types may be omitted.

The tannic acid treatment is proposed to fulfill the indications for local treatment as indicated above in a satisfactory manner; tannic acid has only a slight and unimportant effect on the unbroken skin, but it precipitates proteins which are exposed directly to its action. Burned areas, which have become devitalized and are treated with tannic acid, are, accordingly, made the site of a coagulation process; this coagulation process or tanning prevents the spread of toxins generated in the diseased tissue and at the same time makes a coating which protects the sensitive nerve ends in the undestroyed tissues from air, and from trauma. This coating also, being impervious to moisture, prevents the extravasation of tissue fluids, which is of obvious advantage in that it does away with excess loss of tissue fluids.

In practice the tannic acid treatment consists of the application to the burned

area, after removing gross contaminations, puncturing and cutting away blebs, and washing the surface gently with distilled water, of a freshly made solution of tannic acid in sterile distilled water, the recommended percentage strength varying from 0.75 per cent to 5.0 per cent, a 2.5 per cent solution being perhaps advisable in the average case. The method of application is best by means of the spray or atomizer, in which case tanning of the involved area is slightly more rapid than when undertaken in other ways. Sterile gauze compresses may be bandaged over the involved areas, these being subsequently wet with the solution by pouring the latter over them; it is simpler still to wet the compresses and apply them wet, bandaging them securely afterward. If the spray is used the aim should be to repeat the process sufficiently often to keep the surface wet with the solution, *i. e.*, every half hour, and if the wet compress method is used the compresses should be resaturated from time to time. The process of tanning should be watched, compresses being loosened and raised for the purpose every six hours, and as soon as the burned areas have assumed a uniform mahogany brown color the dressings may be removed or the spray discontinued. Complete tanning will usually take twenty-four hours or more with the compress method and sixteen hours with the spray. It should be emphasized that only fresh solutions of tannic acid should be used, for, while the dry powder keeps indefinitely, a solution of tannic acid rapidly becomes converted into the unsuitable gallic acid. To avoid trauma incident to the removal of dressings at the end of the tanning period the latter should be allowed to become thoroughly wet with the solution just prior to their removal. Subsequent to the tanning process the burned areas are left exposed to the air under a suitable tent which is covered with a sterile sheet to protect the wounds from contamination and within which are placed a number of electric light bulbs sufficient to keep the temperature within at an even

100° F. The tanned areas become gradually dry as a result of the exposure to the warm air, the interval necessary to complete the process being not less than another twenty-four hours and sometimes several times as long, depending mostly on the depth of the burn. A 5 per cent ointment of tannic acid in a base composed of equal parts of lanolin and petrolatum has been advocated in lesions situated about the eyes, ears, and similar orifices where the use of an aqueous solution on compresses may be unsuitable; with due care the spray may be used, however, in these locations and it is much superior for the purpose.

When properly tanned and dried the surface of the lesion is found to be covered by a tough, dark brown, leathery membrane which is insensitive to pain, which forms an almost ideal protection from trauma, and which seems clinically to interfere in no way with the subsequent granulation of the wound from below; in fact, the contrary represents the case more correctly because healing is usually relatively rapid and very satisfactory.

The local treatment being started, in one way or another, preferably by the method just suggested, the systemic treatment is continued. Barring shock, which is early, patients die from blood concentration, toxemia, or infection; the indications are, accordingly, (1) to force fluids early, (2) to recognize toxemia if it occurs in spite of local treatment, and treat it intelligently, and (3) to recognize the presence of infection and attempt to control it.

Fluids should be given early and in fairly large quantities; usually the patient, if not too severely burned, will co-operate by taking quantities of fluids by mouth, but otherwise proctoclysis is invoked, or even hypodermoclysis in cases where other methods do not sufficiently avail.

Toxemia, which may be expected to ensue not earlier than 8 hours after a burn and to disappear in from three to five days can be combatted *specifically* by no

known method. The prophylactic use of blood transfusion in severe cases of burns should be considered early; its efficacy probably varies largely in inverse ratio to the interval elapsing before it is invoked. If Davidson is right in his contention that sodium chloride combats the toxemia by neutralizing or fixing the toxins before they have had an opportunity to exert a minimum effect, frequent chloride determinations on the blood of the patients are of the utmost importance, to be accompanied by the administration of sufficient sodium chloride to keep up a normal concentration. It must be urged that Davidson is of the opinion that the best available index of the patient's condition is to be derived by the determination of his blood chloride content. If Greenwald and Eliasberg's contention is correct that the toxin, once formed, attacks primarily the adrenal glands, first stimulating them to the excess production of adrenalin and then later damaging them to the extent that a marked reduction of the sugar level is produced, adrenalin should be supplied hypodermically after the elapse of a sufficient time to allow the initial stimulating effect of the toxemia to have passed off. At any rate the blood sugar should be estimated frequently in burn cases, since we know that in certain of them the sugar values are low, and in these the administration of glucose, with or without insulin should be of value. Frequent hemoglobin estimations are a measure of the blood concentration; the prophylactic treatment of this condition is far more easy than the overcoming of it after it is once established.

The treatment of infection is mainly prophylactic. A burn is always a potentially infected wound, and few, if any, escape pus production entirely. When pus does form, especially if paraffin or tannic acid has been used, drainage should be established by cutting away the paraffin coating or the tanned area, as the case may be; this being facilitated in the latter in-

stance by softening the membrane first with liquid petrolatum.

Deeper third degree burns. The deeper third degree burns which forbode extensive scar formation often tax the resources of the surgeon to the limit as far as the prevention of the latter complication is concerned; otherwise the treatment is both local and general as indicated for any severe burn. The thick protective membrane which results from a properly produced tanning by the method of Davidson often facilitates early skin grafting in two ways: (1) It affords a dry protective splint in which the patient can lie fairly comfortably while waiting for skin grafts to "take" on the opposite side of the body, and (2) the bed left by the removal of the membrane is particularly suitable for grafting. The early institution of movements designed to prevent contracture deformities especially in localities which are liable to fuse together is of particular importance.

CONCLUSION.

The treatment of burns is now sufficiently well developed along rational lines to stimulate the surgeon's most active interest in his burn cases; the field for research is large and the rewards for careful treatment in this field are as great as can be found anywhere.

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DISCUSSION.

Dr. Isidore Cohn (New Orleans): The first thing expected, and this time well merited, is to say that we have all enjoyed and appreciated Dr. Cutting's splendid presentation. He has brought home very forcibly to us the importance of the toxic condition due to the absorption of the burned products of the body and the principles underlying the treatment of this as brought out by Davison: first, the necessity of preventing the absorption of these autolytic products, which can be done in many ways, most of which he has called our attention to. But from a practical standpoint there are certain fundamental things we ought to keep in mind, viz:

1. To relieve pain, and by relieving pain prevent the further development of shock.
2. Maintain body fluids as far as possible. Just because patient has a burn is no reason why they should not get fluids by every possible means; proctoclysis, hypodermoclysis and even transfusion.
3. The question of preventing absorption of burned products is of fundamental importance. Tannic acid seems to do this about as well as any agent we have, because it produces local coagulation.
4. Prevent contracture. I was very much amused a few years ago by an article entitled *The Orthopedic Treatment of Burns*, the author having in mind the prevention of contracture. This can be prevented in the early stages by making that patient move his fingers and joints as much as possible.

Keep these things in mind and there is no reason why our patients should not do well.

Another thing he refers to are the changes which give us the impression of a definite nephritis, definite as far as the presence in the urine of albumin, casts, a certain amount of blood, etc., is concerned. This is a transient condition. Later, however, all traces of the preceding toxic nephritis disappear.

Dr. R. A. Cutting (closing): I wish to thank Dr. Cohn for his discussion and to express my regret that it was necessary to delete freely and read rapidly in order to keep the paper within the time limit pointed out by your chairman earlier in the evening.

With respect to the orthopedic treatment of contractures following burns there is in the Clinics of North America for February, 1926, a report of a series of plastic operations on a male, aged 5 years, burned while playing with matches. The report is of interest because of the seriousness of the deformity resulting from burns over the anterior neck and chest in this case, the chin being bound down to the sternum by scar tissue so dense that the chin could not be palpated through it nor could the patient close the mouth or lips nor masticate food.

INTERSTITIAL PREGNANCY UNRUPTURED:

WITH REPORT OF CASE.

H. B. ALSOBROOK, M. D.,
NEW ORLEANS.

Interstitial pregnancy refers to that type of case in which the ovum develops in that portion of the tube which passes through the wall of the uterus or in a diverticulum from that part of the tube or in an accessory tube.

HISTORY.

Several authors have given Pierre Dionis credit for being the first to describe a case of interstitial pregnancy, published in 1718. Mauriceau claimed one case before this. Schmidt (1801) is generally credited with having the first authentic case. Mayer (1825) published a treatise on this subject with four cases. Brechet reported cases in 1826.

The first cases reported by an American were by R. H. Fitz of Boston, in 1875, when he reported eighteen cases.

FREQUENCY.

The interesting features of interstitial pregnancy are its relative infrequency and its difficult diagnosis. It is the rarest of

ectopic gestation with the exception of ovarian and some authorities do not believe the ovarian type exists. Pfaff believes interstitial pregnancy more frequent than is believed.

Lawson Tait, in commenting upon a post-mortem specimen, wrote: "In the enormous experiences I have had of tubal pregnancy this is my solitary experience of interstitial tubal pregnancy, but it so closely resembles a number of which I have seen in museums, that I take it to be quite typical of its class. I am, therefore, disposed to believe, from physical examination, that interstitial pregnancy could not be diagnosticated, and I can imagine no symptom which would help us to recognize it before rupture." He found only six specimens in the English Museum up to 1890.

Rosenthal reported thirteen hundred and twenty-four ectopic pregnancies before 1896, the interstitial type occurred in 3 per cent. Munro-Kerr reported one case in eighty or 1.25 per cent. Lequex reported seventy-five cases up to 1911. Levy reported twenty-six cases collected from literature from 1918 to 1925. Martin and Orhman, one in fifty-seven cases. Wynne reported fifteen hundred and forty-seven cases of ectopic pregnancy, of which 1.16 per cent were interstitial. Farrar reported three in three hundred and nine cases of ectopic. From Touro Infirmary two were reported in forty-five cases. At Charity Hospital, over a period of twelve years, three hundred twenty-seven cases, only one could be claimed as interstitial with two others as doubtful.

ETIOLOGY.

It is agreed that salpingitis-oophoritis, pelvic adhesions, infantile tubes with lack of cilia, diverticula and accessory tubes are the predisposing causes of interstitial pregnancy as well as tubal pregnancy. Mall, in one hundred seventeen cases of tubal pregnancy collected over a period of seventeen years, stressed the inflammatory changes which must have preceded the

*Read before Orleans Parish Medical Society, March 12, 1928.

lodgement of the ovum in the tube. Farrar does not believe that inflammatory changes play such an important part in causing interstitial pregnancies as in true tubal pregnancy. She stresses the mechanical obstructions, such as the uterine orifice in the tube, or an adenoma at the angle of the tube or at the junction of the tube and the uterine cavity. She also mentioned congenital malformations, as accessory tube or diverticulae. Levy suggested that possibly infantilism of the female genitalia, with a very small lumen of the tube causing the arrest of the ovum in the interstitial portion. Michinard brought out the fact that in most cases of tubal gestation the ovum is arrested some distance from the fimbriated end of the tube and as it requires some seven days for the impregnated ovum to travel through the oviduct, the ovum may develop and wedge in a narrowed part of the tube. Frankl considers the presence of diverticula of utmost importance as a cause. Donald McIntyre reports a case of interstitial pregnancy in the right side of the uterus two and one-half years after a salpingo-oophorectomy was performed on the same side for an inflammatory condition of the tube and ovary.

CLASSIFICATION.

The classification and differentiations of interstitial pregnancy have been thoroughly discussed by Weinbrauer, Kohlman and Lequex. The implantation of the ovum must be in the interstitial portion of the tube including diverticula from the tube, extending into the uterine muscle. But in view of the fact that the development of the embryo may change anatomical relations to some extent, various classifications have been proposed, but that of Klebs divides interstitial pregnancy into three groups according to the location of the imbedding site as found at operation:

1. Utero-interstitial pregnancy, when the ovum occupied the uterine end of the cornual canal.
2. Tubo-interstitial pregnancy, when the ovum occupied the tubal end of the cornual canal.

3. Interstitial pregnancy proper, when the ovum is imbedded about the middle of the cornual canal.

However, Litzenberg believes the classification of Erna Glaesmer much simpler but quite adequate:

1. The ovum develops in the fundus musculature of the uterus.
2. The development occurs in the side wall of the uterus.
3. The development occurs toward the isthmus of the tube.

PATHOLOGY.

Litzenberg, in his anatomical and histological report of a case, summarized the pathology as follows:

"Interstitial pregnancy differs from other types of ectopic gestation only as the peculiar anatomical conditions which surrounds it may modify its progress; the course and structure of the intra-mural tube leads to implantation near the posterior wall of the fundus. The structure of the tube and the uterine wall favor early rupture of the tube and late rupture of the ovum capsule otherwise interstitial pregnancy repeats most of the features of ectopic gestation elsewhere."

DIAGNOSIS

The signs and symptoms of an interstitial pregnancy are those of ectopic pregnancy. However, the pain is usually early and as Schuman states, usually develops before bleeding or death of the ovum takes place. This is due to the distention of the uterine horn, which does not distend readily. Lewers considers persistent amenorrhea a very important sign in differential diagnosis. Wynne reported amenorrhea in twelve or thirty-six of the cases, the period regular in two, irregular in twenty-two but slight in five of these. In my case the pain and bleeding appeared simultaneously. This case is the only one that I have found in the literature that had repeated chills and fever. The diagnosis before rupture depends upon vaginal ex-

amination, a fairly regular enlargement extending around one cornu of the uterus with a broad base upon the uterus and an absolute absence of a pedicle. The enlargement may be very firm from tension and give the impression of fibroid, but the history should rule out fibroid. It may be confused with one sided pelvic inflammation of the tube, or an intra-uterine pregnancy with ovarian cyst. Pregnancy in one born of a bicornuate uterus may present serious difficulty in making a differential diagnosis, also unilateral corunal abscess.

Virchow noted that the round ligament is always outside of the gestation sac. Ruge's sign, as stated by Simon, is that the distance between the insertion of the tube and the round ligament is increased and the adenexa of the affected side are higher than on the other side, owing to the increase in the size of the pregnant horn and some rotation of the uterus following this symmetrical development. A positive diagnosis of interstitial pregnancy, before operation is very unlikely, but careful history, watching and examination under an anesthetic will often clear up the diagnosis.

PROGNOSIS.

Twenty-one unruptured interstitial pregnancies out of ninety-one have been reported up to 1917, or 23 per cent. The termination is usually a sudden profuse intraperitoneal hemorrhage—this is due to the vascularity at the cornu of the uterus and as the hemorrhage is profuse, clots and adhesions do not have time to form. Beckman and Seifart believes that perforations always occur on the posterior convex surface of the gestation sac. Wynne reported eight out of twenty on the posterior surface, five on the posterior superior surface, one on the posterior lateral, three on the superior, two on the superior anterior and one on the anterior surface of the sac. The pregnancy usually terminates in two or three months and if the patient does not die of shock or hemorrhage a hematocele may develop. In the

utero-interstitial type it may abort into the uterine cavity and go on to term, or a mole may form. It has been reported to develop to maturity in the broad ligament or as an abdominal pregnancy. Kupferberg reported a case in which an eight month fetus was found. Glaesmer reported a seven months. Seifart claims no interstitial pregnancies are seen after six months. Williams reported one rupture after four months. Pfaff reported one after five months—unruptured. Louis McIlroy in 1926 reported a case at term. Wynne gives the mortality as 11.0 per cent, Finisterer gives 10.4 per cent, Shink 22.2 per cent. Prior to 1893, all the cases in literature had been found at autopsy.

TREATMENT.

The treatment is always surgical, whether ruptured or not. The first operation for interstitial pregnancy was by Traub, October 15, 1893, who did supravaginal hysterectomy. Seven days later, on October 23, 1893, Lawson Tait operated on a case by incising the sac, evacuating the contents and draining. If diagnosis is made before rupture laporotomy should be performed if the condition warrants. If rupture has occurred immediate laporotomy is indicated. A great variety of operations have been done for this condition but the type of operation should be selected to fit the emergency. Supravaginal hysterectomy is usually preferred, but excision of the cornum may be done in young women if the condition warrants. The abdominal route is undoubtedly the best. Speed and team work are always to be considered. Blood transfusions, saline and glucose infusions are always in order.

CASE REPORT.

L. J., a colored female, aged 35 years, married for fourteen years and a housekeeper by occupation, was first seen September 20, 1927. At this time she was complaining of chills and fever, pain in the right side of her abdomen and loss of blood for one month. The family history was negative. She had had the usual diseases of childhood. She had had influenza in 1918, and no other serious illnesses. There was no history of pelvic inflammatory disease. *Menstrual History:* Menses be-

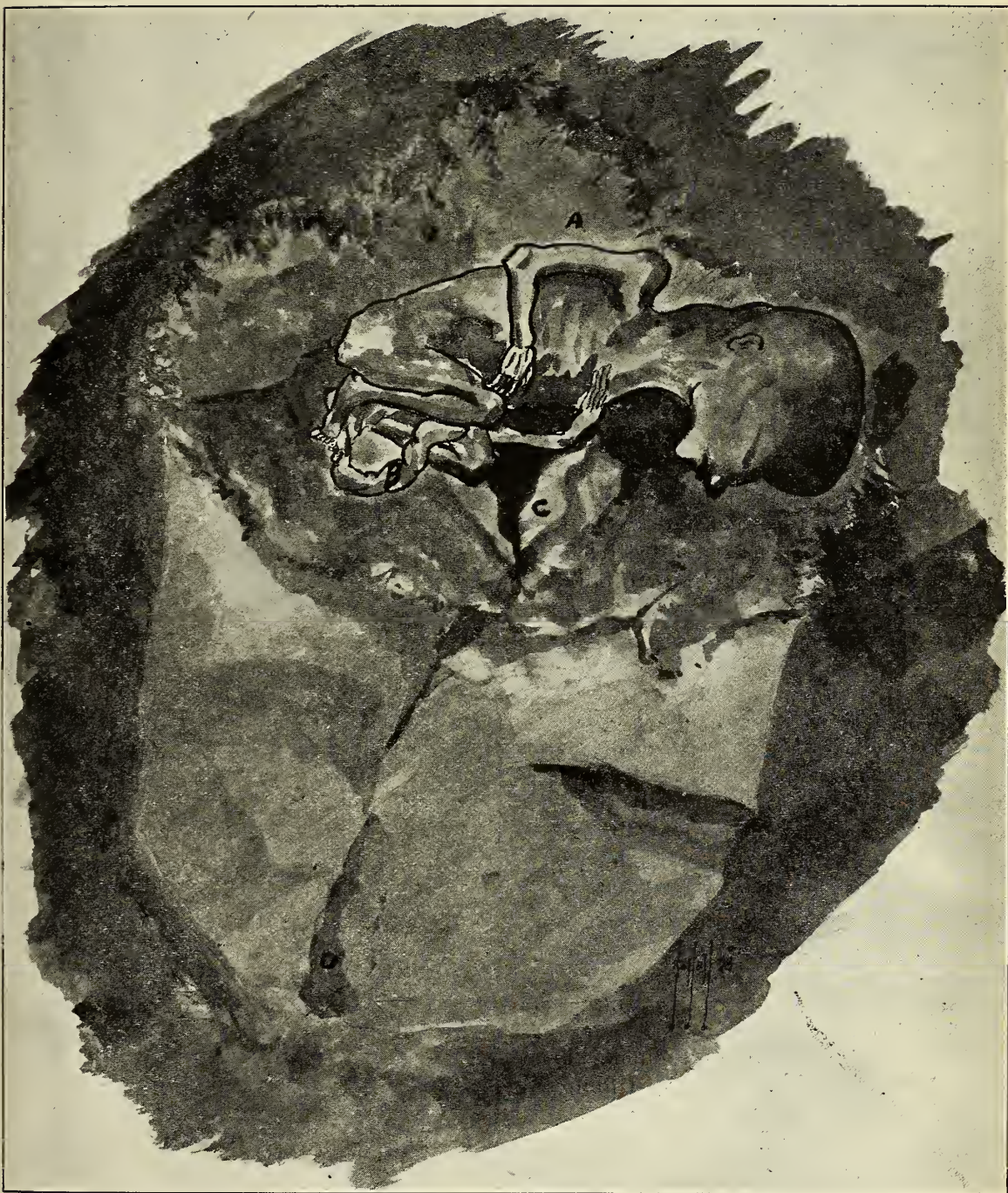


Fig. 1—Cross section. A—Sac. B—Umbilical cord. C—Endometrium. D—Uterine Cavity.

gan at the age of 11 years, regular 28-day type, lasting four to five days with a normal flow. (They were regular until May, 1927, when she skipped May, June and July.) There had been no pregnancies nor miscarriages. The last menses stopped September 10. *Present Illness:* The last menstrual period ended April, 1927. At this time she had slight morning nausea and thought she was pregnant. About the middle of August she began menstruating, which was accompanied by sharp lancinating pain in the right side of the abdomen. She passed clots and lost much blood. Ten days later she began having hard chills followed by high fever, lasting four or five days—recurring in five or six days. The patient took quinin for malaria. The last chill occurred about September 12. She was admitted to the hospital September 21.

Physical Examination: The patient was fairly well developed but poorly nourished negress, height 5 feet 4 inches, weight 100, appearing acutely ill. The temperature was 103°F, pulse 126, respiration 24, blood pressure, systolic 118, diastolic 90. The skin was warm, moist and elastic. A mass, apparently about four inches in diameter, was felt in the right lower quadrant of the abdomen, being extremely sensitive. *Vaginal Examination:* The mucous membrane was purplish. There were no vaginal secretions. The vagina admitted two fingers. The cervix was soft, not dilated. The uterus was soft, about the size of a large orange. A soft mass was felt attached to and extending from the right cornu of the uterus. This was very sensitive to the touch and freely movable. The left tube and ovary were apparently normal. *Pre-operative Diagnosis:* Tubal pregnancy — infected — unruptured. *Laboratory and Pathological Reports:* September 21, 1927. Urine, catheterized, negative except few leukocytes. Wassermann negative. P.S.T. test: first hour 40, second hour 40. Blood examination showed total 18,700 white cells, differential leukocytes: Neutrophils 91 per cent, large mononuclears 6 per cent, lymphocytes 3 per cent, no malaria plasmodia found, anisocytosis, poikilocytosis and polychromtophilia. September 27, 1927. Urine catheterized, trace albumin, trace sugar, acetone positive four plus, occasional fine granular cast, slight deposit of pus, occasional red blood cell. Blood count practically same as September 21, 1927. October 3, 1927. Spinal fluid: Wassermann reaction negative, cell count 1, globulin reaction a trace.

Gross Specimen: Upon sectioning the uterus its wall was found to be markedly thickened and the endometrium was flattened. Upon opening the fluctuating mass a fetus, apparently of four months impregnation was found. It was normally formed and measured from the vertex of the skull

to the tip of the spine (Minot line), 3¾ inches. The sac was found to be lying in the wall of the uterus entirely free from the uterine cavity.

Microscopic: Uterus—interstitial pregnancy with marked hyperplasia of uterine wall. Tubes—chronic salpingitis. Ovaries—healed corpus lutein cysts. Appendix—chronic appendicitis.

Progress notes: September 21, 1927. Admitted at 9:10 a.m. Walked in. Temperature 103.4°, pulse 126, respiration 24. Had chill during night. Treated symptomatically. Operation postponed. September 22, 1927. Hard chill at 6 p. m. Temperature 104°. Lancinating pains in right side of abdomen. No further complaint. Prepared for operation. Postponed. September 27, 1927. Slight chill at 8 a. m. Hard chill at 5:30 p. m. Temperature 104°. Operation postponed. Comfortable until September 29. Chilly sensation. Temperature 103°F. Complaining of slight sore throat. Throat red, no tonsillitis. Treated symptomatically. October 1, 1927. Complaining of pain in right side of abdomen. Mass apparently growing larger. October 3, 1927. Day of operation. Temperature morning of operation 101°, pulse 124, respiration 24.

Post-operative notes: Maximum, temperature 99.6°, pulse 108, respiration 22. Uneventful recovery. Incision healed by primary union. No tenderness. Discharged October 13, 1927. January 15, 1928, feeling fine, gaining weight.

Pre-operative Preparation: October 2, 1927. Prepared for operation. Pre-operative sedative of luminal grs. 2 at 8:45 p. m. October 3, 1927. Pantopone, grs. 1/3 at 6:45 a. m. Morphin sulphate, grs. 1/6 and atropin sulphate, grs. 1/150 at 7:15 a. m. Adrenalin chloride 1/1000 mms. 15, at 8:15 a. m.

Operative Procedure: In a sitting position the skin of the back was prepared with benzin-iodin and iodine. One and one-half grains of apothesine in three centimeters of normal saline was injected between the first and second lumbar vertebrae. In the Trendelenburg position the skin was prepared as before. The abdomen was opened through a midline incision, five inches long, between the umbilicus and symphysis pubis. The upper abdomen was packed off and Balfore retractors placed. No free fluid was found in the abdomen. The uterus and tumor mass was free from adhesions and was drawn into the incision. The uterus was soft, the size of a large orange and extending from the right cornu was a mass about 3 inches long by 2½ inches wide. The right tube was stretched over the mass but the round ligament was anterior and inferior to the mass but higher than the one on left. The blood vessels were dilated and markedly congested. The mass was of a blue-

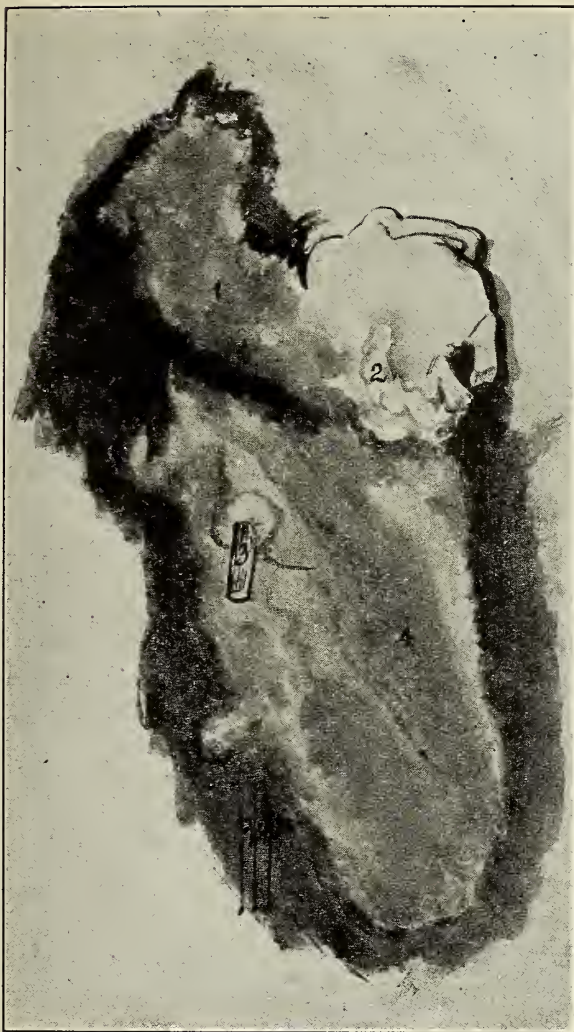


Fig. 2—1—Membranes. 2—Umbilical cord. 3—Fallopian tube. 4—Endometrium.

ish color, soft and evidently contained fluid. Considering the patient's age, a supravaginal hysterectomy was done, including both tubes and ovaries. The round ligaments were sutured to the stump of the cervix and a nice peritoneal toilet was accomplished. The appendix was free, about two inches long, pale, evidently in stage of chronic inflammation. It was removed with double ligature of chromic catgut No. 3 and cautery. The abdomen was closed in tiers with single No. 3 chromic. Silk worm was used for retention sutures and dermal for the skin. Analgesia was complete and there was no nausea.

CONCLUSIONS.

1. Infection or mechanical alteration in the interstitial portion of the tube predispose to interstitial pregnancy.

2. Early diagnosis and immediate lap-
otomy are imperative.

3. Supra-vaginal hysterectomy is the operation of choice.

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DISCUSSION.

Dr. H. W. Kostmayer (New Orleans): The pleasure that I took in accepting Dr. Alsobrook's invitation to open the discussion was somewhat lessened by the reminder that it has been a great many years (too many years) since my first paper before the Society, which was on this very subject—a case of extra-uterine pregnancy. It is evident, from this fact, that from the beginning I have been keenly interested in this subject with its many variations.

The topic is interesting for two pronounced reasons: one is the phenomenon of the ovum being able to develop outside of its normal habitat; the other is the extreme difficulty of diagnosis. It always seems to me a marvelous thing that an ovum, impregnated, intended to lodge in the uterus should take up its residence elsewhere and continue to develop and even go to term (as in the cases of interstitial and abdominal pregnancy that do) and find a way of nourishing itself, attaching itself to anything for blood supply and continuing, as I say, to full term. On the other hand, the diagnosis of extra-uterine pregnancy in any form is extremely difficult, so much so that we check ourselves in the service to ascertain how often our interpretations are correct, or the reverse obtains. We have a case come in with a typical history—missed menses, pain in one or

the other side of the abdomen, mass in one or the other side,—and put down a diagnosis of 100 per cent extra-uterine pregnancy, and find an ovarian cyst. This happened to us just last week. Then again we have opened an abdomen without suspecting this condition, to find a ruptured extra-uterine pregnancy in which the bleeding had ceased. The diagnosis of interstitial pregnancy (by which is meant separating it from other types of ectopic gestation) is largely a matter of guess work. I would not assume that I could differentiate in these cases and state that an extra-uterine pregnancy was interstitial. It has been my misfortune to handle one case, the only one reported from Charity Hospital. This went to table as a diagnosis of extra-uterine without a thought of it being an interstitial pregnancy.

I want to say that I enjoyed Dr. Alsobrook's paper and his resume of this subject which makes it such a worth while study in that it brings to us all of the knowledge of the literature up to date.

Dr. H. R. Unsworth (New Orleans): It is of interest that spinal anesthesia was used in this case. I do not remember hearing any particular indication as to why this method was used, but I feel it is to be regarded with a great deal of respect, and unless there are very definite indications for its employment I feel that it is not an anesthetic of choice. I should like to ask Dr. Alsobrook if there were any unusual post-operative complications of bladder or rectum that he could in any way attribute to spinal anesthesia.

Dr. Abe Mattes (New Orleans): The employment of spinal anesthesia in ectopic pregnancy is the method of choice in quite a number of cases that would not withstand some other procedure and at times the decided factor that makes for the well being and recovery of that patient after operation.

Regarding the serious consequences that may follow its use in ectopic gestation, the danger is no greater than in other operations. I think spinal analgesia can be used with perfect safety, irrespective of whether the patient is suffering from ectopic pregnancy or from any of the other operative conditions we encounter.

Dr. H. B. Alsobrook (closing): In reply to Dr. Unsworth regarding the use of spinal anesthesia in this case. In the first place she was a poor surgical risk, having bled continuously for one month before she came in. Secondly, she had a slight respiratory affection at the time of admission and fearing that inhalation anesthesia might cause a recurrence of the condition, we considered spinal the anesthetic of choice. There was also some blood disturbance. As for paralytic

ileus, I have only seen one case in the past three years in spinal anesthesia. My patient had no laxative other than milk of magnesia on the third day and voided voluntarily after eight hours. The maximum temperature was 99.6°, the pulse 124 on the evening of the operation.

I wish to thank Drs. Kostmayer and Mattes for their discussions.

TREATMENT OF ACNE.

T. A. MAXWELL, M. D.,

NEW ORLEANS.

In considering the treatment of any disease one is forced to realize that one agent, no matter how skillfully employed, is not able to meet and eradicate all conditions which may arise. Without dividing acne conditions into their respective groups, I will attempt in this short paper to cover the practical treatment of this disorder in a general way.

In the cases which give just the ordinary comedones with little or no signs of inflammation I believe that the roentgen-ray given in doses of one quarter skin unit once a week is sufficient. In explanation of this point it should be said that as soon as the lesions are retrogressive, by this I mean that the inflammation has subsided and no new sign of inflammation is occurring, is time to stop treatment with the roentgen-ray even if just three doses of one-quarter skin units have been used. Then the skin should be watched for a recurrence when further roentgenotherapy may be used. I believe in this way the smallest amount of roentgen-ray can be used and the best results attained.

Another way to judge the results of treatment is by making use of the comedone extractor upon patients presenting themselves for treatment. There can be extracted one or more comedones approximating the length of the sebaceous plug. After giving several treatments again extract some of the plugs and it will be

found that the length is much shorter, proving, as I believe, the capacity and function of the glands has been cut down; which after all is the cause of the condition, the hyper-activity of the pilo-sebacous glands.

In cases of pustular acne in which there are signs of secondary infection, I advise the use of roentgen-rays for two reasons: one that the activity of the glands being decreased and the amount of blood to these parts being diminished, the infection becomes less, the pustules dry up and healing takes place, the crust being thrown off with very little scar resulting. In the second place, the pus from the pustules left in situ being absorbed, acts as an auto-vaccine for the patient. Pustules of larger caliber should be opened by the cataract knife and drained because they will cause necrosis of the skin and leave large unsightly scars.

Again in these cases I find it very successful to have the patient use a mask of several layers of gauze soaked in saturated solution of boracic acid, applied to the entire face for about four hours a day. This solution will take care of the miliary pustules which in some instances continually recur. As far as the scars are concerned, especially those which take on a keloid character, roentgen-therapy makes them much smaller and the results are very gratifying. Naturally those deep scars which resemble the scars of small-pox can never be eradicated and are there to stay.

Diet has little affect on the treatment either one way or the other. I allow my patients to partake of sweets freely or any other food which is claimed by others to affect the treatment and I have observed no difference in results.

I do not believe that the general constitutional treatment plays a part in the treatment. All cases have their basic cause in the hyper-function of the pilo-sebacous glands and the eradication of this condition produces the results. I have many times seen severe cases of acne in the healthiest individuals.

The patients that complain of very few lesions on the face but extreme oiliness of the skin I take to be due to the hyper-function of the sebaceous glands; the roentgen-ray is most useful. The giving of one-quarter of a skin unit once a week for two or three doses will relieve this condition for as much as eight months or more. When recurrence takes place another treatment or two is all that is necessary. This method will take care of the oiliness and at the same time will give us a large margin of safety as far as dosage is concerned. It does not cut down the oil too much, the result of which would be a parchment like skin, subject to any and all irritation.

Before closing I wish to call attention to what I consider the most important phase in the treatment of acne. The scalp should be cleared of dandruff because these seborrheic scales fall on the face, irritate the mouth of the pilo-sebacous glands, causing an infection and necessarily a virtual closing of the lesions. With the stoppage of drainage and blocking of the secretions there is started a papule of acne, plus skin erythema, and the pustules then begin. I have entirely cleared up several cases of acne by merely keeping the scalp clean.

In treating acne I would like to have one statement stand out very prominently: Clear the scalp in all cases; I have never seen a case of acne without dandruff.

REVIEWS

SURGERY OF THE RETICULO-ENDOTHELIAL SYSTEM.†

ISIDORE COHN, M. D.,*

NEW ORLEANS.

The subject under consideration emphasizes the need for closer co-operation between internist and surgeon, and the necessity for co-ordination of their clinical experience with the advancing knowledge gained by physiologists in their conquest of the fields of mystery.

The reticulo-endothelial system, so named by Aschoff, consists of certain connective tissue cells both fixed and wandering found in the liver, (Kupffer cells), spleen, lymphatic system, bone marrow and the vascular net work of the omentum and mesenteries.

Aschoff does not consider these cells of hematogenous origin. They are the great phagocytes of the body. "The reticulo-endothelial system must be considered the means of control of the cellular elements of the blood." (Krumbharr.) The site of their greatest activity is in the spleen.

Surgery of this system resolves itself almost entirely into surgery of the spleen. As a corollary to this, surgery of the spleen, when there is disease of the reticulo-endothelial system, will be successful in proportion as it is advised and utilized in cases where the greatest disturbance of the reticulo-endothelial system is in the spleen itself. Therefore, careful selection of cases should be made by proper elimination of those diseases from the category of surgery where the pathology is equally distributed to other organs forming the system.

Galen, many centuries ago, called the spleen the organ "full of mystery." Today this is appreciated probably more than it was in Galen's time.

†This is the third of three papers from a symposium on the Reticulo-Endothelial System, presented at a meeting of the Orleans Parish Medical Society, March 26, 1928. The discussions of the evening follow this paper.

Dr. W. J. Mayo cites the following story:

"A senior medical student, up for his final examination, was asked by the professor of physiology, 'What is the function of the spleen?' After considerable hesitation and digital irritation of the scalp, he replied that he had known but had forgotten. 'What a pity,' said the professor, 'for you are the only man who has ever known.'"

The following are some of the functions of the spleen as one understands them today:

1. Destruction of effete red cells.
2. The fragility of the red cells is increased in certain pathologic conditions associated with splenomegaly.
3. It acts as a scavenger for blood cells, and bacteria as a step in the formation of pigment.
4. It prepares bilirubin from the broken down hemoglobin. It is found that the splenic vein, as a result of red cell destruction, contains more bile pigment than the splenic artery.
5. It stores iron.
6. It destroys platelets.
7. Thrombo-plastic substances, which have to do with coagulation, are formed as the result of platelet destruction.
8. The spleen acts as a filter.

The purpose of this paper will be to give supportive arguments for surgical intervention in certain diseases of the reticulo-endothelial reason.

In order to do this it will be necessary to discuss indications as pointed out by physiology and pathology.

The technic involved in doing a splenectomy will not be particularly considered as the method of procedure has been established.

It may be asked what changes may be expected to follow splenectomy.

Splenectomy for a pathologic condition is followed by:

1. A rise in red cell count.
2. An increased resistance of the red cells to hypotonic salt solution.
3. A lessened tendency to jaundice.
4. Spontaneous hemorrhages are rare after splenectomy for pathologic conditions.
5. There is an increase in the platelet count.
6. There is a return to the normal bleeding time, probably due to the increase in reticulated cells in the circulating blood.
7. The blood clot becomes retractile.
8. There is a proliferation of the endothelial cells in lymph glands and in the liver, and a reddening of the bone marrow.
9. Following splenectomy there is less blood in the portal circulation.

Another question which naturally arises is: In which cases are we led to expect beneficial results from splenectomy?

Lest we become too enthusiastic in our approach to the problem of surgery where splenomegaly exists we must recognize the fact that the operation will be beneficial directly as the spleen is the seat of the greatest disturbance in the disease causing the anemia. This is not a new thought, simply a reiteration of an old warning.

I hope to develop this thought.

ANATOMY.

The blood supply to the spleen and the disposal of its venous blood is of particular interest and consideration of it offers room for some speculation with reference to the association of diseases of the liver and spleen.

The splenic artery is a branch of the coeliac axis, the other branches being the gastric and hepatic. The splenic vein with

the mesenteric forms the portal vein. Thus we see that the spleen and liver receive their blood supply at the same source, a wandering cell or organism has an equal chance to reach both organs. By means of the venous channels the liver receives the spleen's refuse products.

As a drainage problem one would expect to find hepatic disturbances benefitted by diminishing the amount of blood which passes through it. This is what happens following splenectomy in portal cirrhosis.

Wilkie mentions the fact that a branch of the phrenic nerve is supplied to the spleen, which accounts for pain in the left shoulder in splenic disease.

In considering diseases of the reticulo-endothelial system one must of necessity consider those conditions in which it is suddenly called upon for emergency work.

In some instances something must be done to take care of the situation when the reticulo-endothelial system is over stimulated. In other words, give time for the system to mobilize reserve forces and to bring the same to the front for the defense of the patient.

Such conditions are represented by the acute anemias due to hemorrhage and septicemia.

In hemorrhage the sudden loss of blood should be replaced while the blood making organs have the opportunity of reproducing that which has been lost.

In septicemia, since the reticulo-endothelial system is the great defensive mechanism, and since the great phagocytizing mechanism is taxed to the limit of its capacity, over stimulation may result in exhaustion and the patient overwhelmed by the invading organism.

Supplying whole blood temporarily adds the needed elements and at the same time provides a natural stimulation to the reticulo-endothelial system.

Hemorrhage and septicemia. These conditions cannot be considered without mentioning transfusion. Whole blood should be the method of election in all cases.

Splenectomy has given spectacular results in two of the diseases of the reticulo-endothelial system—hemolytic jaundice and thrombocytolytic purpura.

Splenomegalies in association with splenic anemia and the Banti syndrome, cirrhosis of the liver, Gaucher's disease, and Von Jaksch's anemia have found a place in the category of diseases in which benefit may be expected in selected cases from splenectomy.

Pernicious anemia and the leukemias will be briefly discussed.

In presenting this subject from a surgical standpoint it is pardonable to give briefly the clinical manifestations which justify the surgeon in operating. This observation is made because it should be the conviction of the surgeon that an operation of such magnitude should not be performed merely at the request of his medical confreres. The surgeon should be capable of making his own diagnosis.

HEMOLYTIC JAUNDICE.

This disease is characterized by splenomegaly, jaundice, the presence of coloring matter in the stools, and the absence of bile pigment in the urine.

Examination of the blood reveals diagnostic characteristics. We find increased fragility of the red cells, and an anemia which at times becomes so great that it almost presents a picture of pernicious anemia.

According to Whipple "the excessive red cell destruction results in an amount of bile pigmentation beyond the ability of the liver to excrete and a jaundice results."⁽²⁾

What is to be expected of surgery in this disease?

We know that splenectomy is followed by an increased resistance of the red cells

to destruction, therefore there will be less opportunity for the formation of bile pigments, hence there should be less jaundice.

Since these things are facts splenectomy should be a specific antidote for a disease in which the hypersplenism is associated with destruction of the red cells, increased pigment formation and increased fragility of the red cells.

The operation of splenectomy for hemolytic jaundice was first performed by Micheli in 1903. The first reported splenectomy was by Banti, 1912.

That the results obtained justify the means is proven by the statistics of Giffen. In November, 1927, he reported 81 cases with a hospital mortality of 4.93 per cent. Of the 68 living at the present time, 63 are in good health.

All authorities have agreed that the diagnosis once made indicates splenectomy after proper pre-operative preparation of the patient. As proof of this I will cite Whipple: "In this disease as in no other splenopathy splenectomy gives a brilliant immediate as well as permanently a curative result."

Giffen states that the importance of the diagnosis is now so well understood and the value of splenectomy so generally recognized that it is not necessary to elaborate on them.

THROMBOCYTOLYTIC PURPURA.

This disease has attracted a great deal of attention during the last few years, particularly since the work of Brill and Rosenthal in our country in 1923, and the work of Katznelson and Franck, as well as others in foreign fields.

The disease is characterized by varying degrees of splenic enlargement, hemorrhages from the mucous membranes, and under the skin, marked anemia, prolonged bleeding time, normal coagulation time, a non-retractile clot, and diminution in the platelets in circulating blood.

This disease is one of the apparently proven conditions associated with disturbance of the reticulo-endothelial system. The platelets are formed in normal numbers, evidencing the fact that there is no disturbance in the megakaryocytes of the bone marrow from which platelets are formed. The hyperactivity of the spleen and other members of the reticulo-endothelial cells destroys the platelets as fast as they are formed. Since we know that platelets are the only formed elements which have to do with coagulation of the blood, their destruction interferes with the formation of a retractile clot. The efficiency of splenectomy in this disease is one of the specific arguments of the value of surgery in those cases where the diagnosis is justified.

Failure to cure a case of purpura by splenectomy may be attributable to operation done on a case in which either the patient has not a true thrombocytolytic purpura or as Whipple cautioned "where the major part of the thrombocytolysis has not taken place in the spleen."

Too much stress cannot be laid on the importance of an accurate diagnosis. Platelet counting requires careful technic. A special method of accomplishing this was developed by Dr. R. T. Liles while we were doing some experimental work on this subject several years ago. His methods have been published in the *Journal of Experimental Biology and Medicine*.

All are agreed that the diagnosis indicates surgical interference after transfusions have temporarily restored the blood balance.

SPLENIC ANEMIA—BANTI'S DISEASE.

This disease is characterized by splenomegaly, weakness, progressive secondary anemia, low color index and leukopenia. In the latter stages the liver is enlarged and there is an associated ascites.

The red cells retain their normal shape, "Nucleated forms are rarely seen," (Pool), and the fragility of the red cells is not increased. The coagulation and bleeding

time are normal, and the platelet count is not disturbed.

Jaundice is rare. At times there are hemorrhages. Pool states that you may have "purpura epistaxis, hematemesis, melena, hematuria, and uterine hemorrhages. The most severe hemorrhages come from the uterine and occasionally prove fatal."⁽³⁾ The etiology of this disease is unknown.

Many theories have been advanced by writers and one which I have quoted before seems to offer the most rational explanation. (Hanrahan.)

"1. In any consideration of the general question of anemia one is confronted with the absence of any proved and accepted explanation of the mechanism of the blood balance in the body."

"2. We accept that there is a continuous activity of a widely distributed hematopoietic tissue which in health is exactly balanced by a hematoctatonic function."

"3. It is obvious that an uncompensated disturbance in either of these balanced forces will produce the clinical manifestations recognized as anemia or polycythemia."

"4. The conception of a reticulo-endothelial cell apparatus attempts to provide an organ or system for this function."

"5. The presence of splenomegaly points to some involvement of the spleen and early led to splenectomy on purely empiric grounds." (Hanrahan.)⁽⁴⁾

Whipple believes that "the good results following splenectomy in the early stages of the disease favor the view that the primary cause is in the spleen and these good results are shown not only in an improvement in the anemia, but an arrest of the degenerative changes in the liver, and the portal obstruction."

Even though the disease is not primarily in the spleen the good results may be due,

as is believed by Dr. W. J. Mayo, by removing an agent of destruction and by so doing the essential causes of the disease is rendered ineffective.

In the past splenectomy has been advocated particularly in cases before the development of ascites. Within recent years Sweetser has advocated operation in the late stage in order to relieve the portal system and thus diminish the work on the liver and effectively decrease the ascites.

Causes of death following splenectomy in Banti's disease:

Wilkie says that death follows splenectomy in some cases as a result of mesenteric thrombosis. Cases of Banti's disease may have either a high or low platelet count. Those with low platelet count respond well, those with high platelet count "show a tendency to thrombosis following splenectomy." (Howell Evans.)

Consideration of the results of splenectomy, in those cases of the Banti syndrome associated with ascites, has directed attention to the possible value of splenectomy in cirrhosis of the liver. It is easy to understand that in some cases where the spleen and liver are enlarged difficulty arises when an effort is made to determine which enlargement occurred first, the liver or the spleen.

On the above basis splenectomy has been done in a few cases of cirrhosis of the liver with benefit.

VON JAKSCH'S ANEMIA.

"Von Jaksch's anemia is a condition occurring in children and marked by anemia, slight enlargement of the liver, and marked enlargement of the spleen and sometimes an enlargement of the superficial lymphnodes. The blood picture is characterized by a well-marked diminution in the number of the red cells and the hemoglobin and a persistent leukocytosis of varying degree."

"*Pathology.*—There is anemia of the organs, often associated with more or less fatty degeneration. There may be pete-

chiae and in some instances there have been described hydropic collections in the body cavities. The lymph nodes are apt to be enlarged and cherry red, the so-called hemolymphnodes. The bone marrow is dark bluish red and hyperplastic—of the myeloblastic type. Films made from these organs reveal the presence of nucleated red cells. The spleen is very large and varies in color."

"*Symptoms.*—Pallor, weakness, and dyspnoea are early symptoms. True jaundice does not occur. The enlargement of the spleen appears early in the disease and may reach an extreme degree. The examination of the blood must determine the diagnosis."

"The hemoglobin may be as low as 20 per cent and the red cells down to 1,000,000. The color index is usually less than 1.0."

"The erythrocytes show an extreme departure from the normal. Megaloblasts and normoblasts are often seen."

"Leukocytosis is an important element in the blood picture. It may be as low as 10,000 and may reach 50,000. The differential count shows nothing remarkable. The fragility of the red cells is normal as a rule." (Pool.)

Under the head of treatment of this disease Pool makes the statement that "In no instance is it reported that the patient suffered harm as a result of splenectomy, so that every patient with von Jaksch's anemia who fails to improve with other treatment is entitled to this operation."

Considering the pathology as given above by Pool the splenic enlargement, hepatic, lymph node enlargement, as well as evidence of hyperactivity of the bone marrow seem to suggest that the entire reticulo-endothelial system is disturbed and therefore only conservative estimate of the value of surgery in this disease should be made.

GAUCHER'S DISEASE.

Gaucher's disease was first described by Phillipe Gaucher in 1882. He considered it a primary epithelioma of the spleen.

This disease is characterized by "progressive increasing enlargement of the spleen, a similar though later enlargement of the liver, by a brownish discoloration or pigmentation of the skin, chiefly of the face, neck and hands, by peculiar changes in the ocular conjunctiva giving rise to cuneiform thickenings extending from the corneal margins to the inner and outer canthi. It is later accompanied by an anemia of the chlorotic type. Hemorrhages occur frequently from the mucous surfaces, and occasionally in the skin. The blood, even in the early stages, shows a persistent leukopenia, which attends the disease throughout its entire course; the erythrocytes, however, are not altered in shape, size or number, nor is there a hemoglobinemia, until the disease has lasted a few years. Even then the anemia does not become very pronounced. The disease is a particularly chronic one, often of many years' duration. Jaundice is not present and ascites is a very rare accompaniment."

"Pathology.—The distinctive feature of the disease is the presence in the spleen, liver, lymph-nodes and bone marrow of peculiar, large cells with a characteristic type of cytoplasm."

"Bone Marrow.—The consistency of the bone-marrow is soft and the color is always red, but small white or yellowish areas are frequently seen. The large characteristic cells described in the spleen, liver and lymph-nodes are found here in abundance."⁽⁵⁾

In regard to the treatment there is no general agreement.

Whipple advocates splenectomy with the caution that brilliant results must not be anticipated because extensive distribution of the disease at a distance from the spleen may later appear.

Wilkie cites Guillott's record of 14 cases which had been splenectomized with only 3 deaths. In the remaining 11 the results were extremely satisfactory.

Brill and Mandelbaum on the other hand state that "at the present there is no agent which can be depended upon to arrest the disease." "The writer fails to see how such a measure (splenectomy) can control the course of a disease which is not confined to the spleen but which seems to invade almost simultaneously all the components of the hematopoietic system. To remove the disease it would be just as necessary to remove the lymph-nodes and the bone marrow from the body as the spleen, which of course cannot be done."

A middle ground may be taken. If the spleen seems to be the greatest offender and by its enormous size is giving trouble it should be removed. It must be remembered in a disease which is so widespread that little should be expected of surgery.

Diagnosis is of paramount importance. Splenomegaly must not be assumed to be an indication for splenectomy. In no other disease unless it be leukemia is the question of justification for surgery so definite.

In Gaucher's disease, like in leukemia, the justification for surgery must be proven before it is undertaken.

Time and patient research for the cause of Gaucher's disease will finally dictate the proper treatment.

PERNICIOUS ANEMIA.

This has been a battleground between surgery and medicine for several years.

Until the work of Minot and his associates was published a few years ago repeated transfusions and splenectomy seemed to offer the greatest hope. There are still some who believe that the operation is being neglected now more than is justified.

Before a conclusion is reached, that it should never be done, it certainly will be well for all concerned to appreciate the fact that splenectomy may still find its place in some cases where other methods of treatment are used in connection. Such a belief was expressed by Giffen, Novem-

ber, 1927, when he stated: "It is, however, not impossible that a splenectomy combined with other methods of treatment may eventually have a more significant place in the management of pernicious anemia."⁽⁶⁾

The etiology of this disease is unknown. It is characterized by marked anemia, high color index, progressive weakness, gastrointestinal manifestations, and lesions in the spinal cord.

I believe that certain of these cases after repeated transfusions and the Minot diet may, with some degree of propriety, be operated and beneficial results be obtained. Until the etiologic factors are determined we will still be in the dark as to the proper method of approach.

LEUKEMIA.

One might almost dispose of this subject from a surgical standpoint by quoting Charles L. Green when he says: "It is contraindicated absolutely."

The attitude that surgery is contraindicated can be easily appreciated when one understands that there is almost a universal glandular enlargement.

In order to cure not only will it be necessary to remove the spleen, but the entire reticulo-endothelial system. This, of course, is impossible.

In this disease we must look to the roentgen-ray, radium, benzol, or possibly some therapy which is not yet outlined.

Before closing I should like to call attention again to a phenomenon which occurs in some cases following splenectomy; a reaction which is similar to that of capillary poison such as histamin. This reaction forces one to the conclusion that in doing a splenectomy an over-dose of capillary poisoning may be instantly liberated.

Comparison with Dale's work on capillary poisoning should throw some light on this suggestion.

The practical application, that I believe is essential, is that there should be as little

manipulation of the spleen as possible because it may liberate an excess of the capillary poison and thus produce a reaction.

CONCLUSION.

1. Co-operation between internist, physiologist, and surgeon is of paramount importance in diseases of the reticulo-endothelial system.

2. Continued research for the etiologic factors in order to properly catalogue these diseases is important.

3. Since the reticulo-endothelial system is the mechanism for blood balance, we must be reasonably sure that the spleen is the greatest disturbing factor before undertaking surgery.

4. Transfusion in hemorrhage and septicemia is rational because of the acute disturbance of the reticulo-endothelial system which is present in these conditions.

5. Splenectomy is followed by brilliant results in hemolytic jaundice and thrombocytotic purpura.

6. Splenic anemia is greatly benefitted by splenectomy.

7. Gaucher's disease, von Jaksch's anemia, and pernicious anemia are not entirely dependent on surgery for beneficial results.

8. Leukemia is not a surgical disease.

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DISCUSSION.

Dr. J. H. Musser (New Orleans): It seems to me that this whole subject has been so thoroughly discussed and so many facts brought out that it is hardly worth while for me to attempt more in the way of discussion. Dr. Duval brought up some interesting points of a controversial character which might be answered in closing by Dr. Laurens.

One disease I might mention, not mentioned tonight, which it seems is outstanding evidence of disease of the reticulo-endothelial system, and that is infectious mononucleosis, which is primarily a disease of this interesting system.

In conjunction with remarks that were made from the surgical standpoint, I would emphasize one particular idea, that is: despite the enthusiasm in the study of a definite condition and our enthusiasm for the remedial measures which sometimes help in certain types of cases, follow Dr. Cohn's suggestion that we do not become over-enthusiastic. Because the spleen is responsible at times for diseases of certain types does not follow that all types of blood disease would require splenectomy.

Dr. Pigford took up very thoroughly indeed the various diseases which play a part in the disturbance of the physiology of this reticulo-endothelial system.

Splenectomy is followed invariably by an enlargement of the so-called hemolymph nodes and in experiments with animals they develop with remarkable rapidity, explaining in part why so often after the spleen is removed the anticipated result is rather short-lived. I have had the opportunity of following up four or five individuals who were splenectomized a few years ago, and I always hoped that I would have the opportunity of examining these individuals post-mortem. Thus far none of them have died and it may be that I will never have this chance. But I would like to call the attention of those surgeons who have performed this operation some years back to keep in touch with their patients and in the event of death to get an autopsy, if possible, and study carefully the results.

Dr. E. D. Fenner (New Orleans): We hear before this Society practical papers that tell us the

experience of the writers, and we have, sometimes, papers of the type we have listened to tonight, for which I think we should be grateful. Looking around this audience, I take it that many are like myself, and feel that much that we have heard is still a little above our heads, and that we are looking up and out at an aeronautic expansion of the present horizon of medicine. But these papers, while most of us do not yet know a great deal about the problems they present, have given us something to think about. And thinking is always good for us.

I have but one word more to add. The highly technical character of these discussions recalls to my mind a negro maid, who worked for years in my mother's household, whom I heard speaking to the cook about my brother. She said: "I certainly do like to listen to Mars Charlie converse; he does talk such high dictionary."

Dr. Russell Pigford (closing): I should like to call attention to the apparent geographical distribution of polycythemia vera. It is very rarely seen in tropical and sub-tropical regions, while the greatest incidence seems to be in the cooler climates. The greatest number of case reports have been from the northern and eastern parts of this country and the northern countries of Europe. That it does occur in sub-tropical climates, however, is evidenced by the report of a case occurring recently in the service of Dr. Musser at Charity Hospital.

Dr. Henry Laurens (closing): In the analysis of this interesting system one of the chief difficulties we encounter is correlating what happens in health and what happens in disease. In this connection I am reminded of a remark that "It is in her moments of abnormality that Nature reveals the secrets of her laws." I think, however, that Professor Duval is a little too broad in his concept of the reticulo-endothelial system. In the embryo the general endothelial bed is highly phagocytic. It has been shown, however, in a recent paper (Beard, J. W., and L. A. Beard. Amer. Jour. Anat., 40:295-314, 1927) that as the embryo develops the phagocytic capacity of certain portions of the endothelium increases, while at the same time that of other vascular endothelium diminishes. The portions which show the increase (the "specific endothelia") are those I have outlined as being included in the reticulo-endothelial system. Aschoff concedes that the perivascular cells of the kidneys and adrenals and reticular cells of the pancreas belong to this system in the broader sense of the term. If included at all, the interstitial cells of the testis and the reticulum cells of the thymus would represent only an accessory branch of the reticulo-endothelial system. According to Aschoff, only the special-

ized endothelium of the liver, spleen, bone marrow, lymph nodes, adrenal and hypophyseal capillaries belong to the reticulo-endothelial system, the vascular endothelium elsewhere being unable to produce mobile phagocytes.

In answer to Dr. Fossier's request for information about this recent work dealing with the lungs as a blood-forming gland, I am afraid that

I can not be of service. The function of the alveolar phagocytes is an interesting question. The alveoli, however, are lined with epithelium, and not endothelium, and that, I think, throws this particular portion of the organism out of our present consideration. It has been shown a number of times that these cells are highly phagocytic and ameboid and behave like histiocytes.

CASE REPORTS AND CLINICAL SUGGESTIONS

GANGRENOUS APPENDICITIS OCCURRING SIMULTANEOUSLY WITH SCARLET FEVER.

J. M. BODENHEIMER, M. D.,

AND

T. J. FLEMING, M. D.,

SHREVEPORT, LA.

To quote Woody⁽¹⁾ "The combination or concomitant infections are not limited to two, triple infections are not uncommon and quadruple are not unknown. In fact their number may be as many as the infections to which a given individual has been exposed, though they do not necessarily all appear during the acute stage of one or the other disease."

"We have seen scarlet fever combined with varicella and whooping cough, with diphtheria, measles and epidemic cerebro-spinal meningitis, also scarlet fever, diphtheria, varicella and whooping cough, with recovery."

Scarlet fever as a surgical wound infection is not unknown, but nowhere have we been able to find reported a case of gangrenous appendicitis concurrent with scarlet fever.

A High School boy, sixteen years of age, was brought to our office to be treated for a severe case of acne of face and back. Upon examination, a scarlet fever rash was observed upon chest, abdomen and inner surface of thighs. Temperature 102° F., pulse 100. Throat and tongue were characteristic. The diagnosis of scarlet fever was confirmed by Dr. M. S. Picard.

The following morning the patient's general condition was splendid with eruption and strawberry tongue more marked. Temperature 99.5°, pulse 90. About noon he was suddenly seized with pain in epigastrium following the ingestion of a banana. His mother administered the usual household remedies including Epsom salts, which he fortunately vomited, and securing no relief, one of us was called.

After the customary lecture on the promiscuous use of purgatives in "stomach ache," tincture of opium, five minims every two hours for the relief of pain was prescribed. The following morning the mother reported that the boy had continued to vomit and that the pain was even more severe than before. He was now suffering with cramping over the entire abdomen and with watery stool every five minutes. There was no definitely localized point of tenderness, and no muscular rigidity, although he did complain of some soreness upon palpation. At 6 p. m., 30 hours after the initial attack of pain in the epigastrium, there was a well localized point of tenderness in the neighborhood of McBurney's point. Temperature 102°, pulse 110. At 9 p. m. temperature 103.5°, pulse 120. Blood report by Dr. C. E. Hammer, was as follows: Total white count, 8,500, with 78 per cent of polymorphonuclears.

In spite of the fact that he had been suddenly relieved of pain, or rather because of that symptom, together with climbing temperature and pulse, we made a gridiron incision directly over the point of greatest tenderness and delivered a large gangrenous appendix enfolded in the omentum, which ruptured, exuding very foul smelling pus.

We simply tied off the appendix, cauterizing the stump and draining with a cigarette drain.

The patient made an uneventful recovery, the healing being in no way impaired by the scarlet fever. There were several problems that presented themselves to us in this case. The first was: what would be the results of an operation on a case of scarlet fever? Second: how would the disease effect the healing? Our results in this case were not influenced in the slightest by the scarlet fever.

We were confronted with practically a normal blood count where either condition should give a leukocytosis with marked increase in polymorphonuclears. In this case the gangrenous condition governed the blood picture.

There is one lesson from this report which unfortunately some of our doctors have never learned. Clinical judgment still holds supreme rank in deciding a course of action.

(1)—Tice, Practice of Medicine.

A CASE OF ADVANCED BANTI'S DISEASE FOLLOWED BY SPLENECTOMY.

H. E. GUERRIERO, M. D.,

MONROE, LA.

The syndrome of enlarged spleen and severe anemia was first fully described by Guido Banti in 1894. He was the first not only to call attention to the cirrhosis of the liver that is so characteristic of the late stages, but also to offer evidence as to the primary relation of the spleen, and to suggest its removal as to the most logical treatment.

Mr. S., a white male, age 49 years, by occupation a carpenter, was first seen December 5, 1927, complaining of vomiting of blood, general weakness and soreness over splenic region.

Present illness: Patient was in good health until present illness, first noticed by him in November, 1926, at which time he felt perfectly well except for an occasional attack of head cold associated with soreness over spleen and general neuralgic pain through his gums and teeth, otherwise he felt in perfect health. The soreness over his spleen was always preceded by an acute head cold. He had several such attacks up until July, 1927, when he vomited a very large amount of fairly bright red blood for the first time. During the month of July he had five such hemorrhages in all. Two transfusions (500 cc. citrated blood) were given during the month. Patient said he improved following the transfusions, but never regained his full strength. During and following the hemorrhages patient suffered no gastric or other discomforts except for a general weak feeling and soreness over splenic region, no melena present except on days following hemorrhages, no diarrhea. Patient suffered no further discomforts other than what has previously been mentioned up until December 1, 1927, when he again vomited blood in large amounts without any associated pain or discomfort. Had three such hemorrhages and was sent to the hospital on December 5, 1927.

Appetite has always been good, there has been no gastric disturbance, no diarrhea, and no melena except after hematemesis. Symptoms of respiratory, cardio-vascular and urinary system dysfunction have been entirely absent.

There has been no loss of weight before he first vomited blood in July, 1927. Since this time he has lost about twenty-five pounds.

Physical examination: Reveals a white male well developed and fairly well nourished, lying

flat of back, apparently very comfortable. Patient looks very anemic, skin having a lemon tinge color. Approximate height 6 feet. Approximate weight 145 pounds. Skin is negative except for lemon tinge suggesting marked anemia. There is no glandular adenopathy. Pupils react normally to light and accommodation. Patellar reflexes are active and equal.

Head: No tenderness over sinuses on marked pressure. (a) Eyes, no scleral jaundice, conjunctivae pale. (b) Mouth, majority of teeth removed August, 1927. Remaining teeth poorly kept, but are in fairly good condition. No evidence of pyorrhea alveolaris. No pus could be expressed from tonsils.

Chest: Symmetrical. Ribs prominent. Lungs: Negative. Heart: No cardiac enlargement; systolic murmur present at apex, not transmitted, functional in type, possibly due to marked anemia.

Abdomen appears somewhat distended, with bulging in flanks suggesting fluid. Veins over the lower abdomen plainly visible and appear congested. Palpation reveals no tenderness or rigidity. Liver is not palpable. In splenic region a very hard smooth tumor mass is present. Tumor extends to level of umbilicus downward and to midline to the right. Mass is somewhat movable and is somewhat tender on marked pressure. On percussion shifting dullness was present. Extremities: No edema present. No arteriosclerosis present in radial vessels. Blood pressure was 98 systolic, 64 diastolic.

Latter history: Patient was first seen on December 5, 1927. Blood picture at this time showed: Erythrocytes 1,810,000, hemoglobin 35 percent (Talquist), color index .9, leukocytes 20,550, small mononuclears 19 per cent, large mononuclears 1 per cent, neutrophils 80 per cent. No malaria plasmodia found and no nucleated red cells. Polychromatophilia and anisocytosis present.

December 6: Wassermann, negative; kidney function test, 50 per cent; coagulation time, 4 minutes; bleeding time, 1 minute; fragility test for erythrocytes, normal.

Urinalysis: Negative except for trace of indican and a few pus cells.

December 7: Almost daily blood counts showed but slight variation in the blood picture despite another transfusion of 500 cc. of citrated blood.

December 30: Splenectomy done. About 4000 cc. of straw colored fluid found in the abdomen. Spleen was found to be very hard and about seven times its normal size, was adhered to the diaphragm above and to the abdominal wall laterally. Stomach negative. Liver showed a fairly well

advanced cirrhosis. Immediately following operation 500 cc. citrated blood given as transfusion. Patient reacted from operation in very poor condition. Five hundred cc. 10 per cent glucose solution given as infusion twice daily for four days.

January 2, 1928: Patient improving. Erythrocytes 2,050,000, hemoglobin 40 per cent.

January 4: General condition good. Erythrocytes 2,720,000, hemoglobin 40 per cent.

January 9: Blood picture: Erythrocytes 2,400,000, hemoglobin 40 per cent. Patient complaining of soreness in right arm, which was found to be slightly swollen, red and very painful to touch. Slight edema of forearm and hand present. Tenderness present over basilic vein with evidences of thrombophlebitis present. Temperature 102°. Diagnosis of thrombophlebitis of axillary vein was made, following transfusions and infusions. Extremity was splinted and elevated.

January 11: Edema of forearm and hand disappearing, temperature curve dropping. Operative wound healed.

HEALTH THROUGH ADVERTISING.—The health motif has taken the advertising world by storm. Whether it be safety razors, a new breakfast food or rubber heels; tooth brushes or dentifrices or a gargle for the garrulous throats of the multitudes, the banners of improved health are flaunted in the van, and the rustling of their silky folds obscures the music of the steady stream of cold cash that pours into the coffers of the advertisers. The California fruit growers of Los Angeles continue to rid the world of acidosis, aided by a stupendous advertising campaign in the lay, and, we fear, in the medical press. Fleischman's yeast (none other will do) continues to remove acne as if with sandpaper, and restores to health the racked and costive bodies of famous athletes, actresses and opera singers. The list of renowned health propagandists is a long one; the Cuban sugar planters are about to convince a willing populace that sugar plays no part in obesity, and certainly none in diabetes. Twenty-two thousand one hundred and fifty-two witnesses say, in the case of *The People vs. Caffein*, "My nervousness vanished when I changed to Postum!" 'Tis for your own good health—and the health of your family—you must buy a certain well known electric refrigerator. Only with one particular tooth brush can you gain gloriously white teeth and coral firm gums. To make this more effective, however, the danger line must be scrubbed with a special tooth paste, and the acme of health is achieved when you put new youth into your stride with the buoyant, lasting spring of rubber heels.

January 16: Blood picture: Erythrocytes 2,560,000, hemoglobin 49 per cent. Patient put on Minot-Murphy liver diet.

January 17: Discharged from hospital.

Pathological findings: Examination of spleen removed at operation. Weight 1500 gms. Capsule enormously thickened consisting of dense connective tissue. Microscopic examination reveals a marked increase of connective tissue throughout organ. Malpighian corpuscles are absent from section examined.

Diagnosis: Splenomegaly; fibrous. The histological picture is that of late Banti's disease.

Progress notes: Patient up and about, gradually regained full strength. March 25, 1928, no return of ascites. Blood picture: Erythrocytes 3,750,000, hemoglobin (Dare) 58 per cent, total leukocytes 19,000, neutrophils 52 per cent, small mononuclears 46 per cent, large mononuclears 2 per cent. No nucleated reds were observed.

Indeed it reads like poetry. Enjoy shoe health, a St. Louis firm tells us, for whatever your avocation, good health is a vital asset, and the shoes you wear are a very important factor in keeping you physically fit. Cod liver oil raises the 80 per centers to 100 per cent. health. The average man of 35, we are told by the American Barley Corporation, is beginning to slip physically—to lose that vital, physical force, that buoyant enthusiasm, which makes his ideas "go across". Cream of barley is a demulcent; it sends men to work to win.

At the other end of the health rainbow—and remember that rainbows are elusive—lies what we who are engaged in the profession that deals with health and disease believe to be the true pot of gold; the health examinations; advice, as sound as we can make it, on hygiene and right living; early and correct diagnosis if possible; ethical treatment, and the intelligent education of the public along the lines of health and disease. We may not be accomplishing, always, the end towards which we are striving, for we are often the victims of personal bias or of lack of knowledge, and in our own ranks are those who do not fight the good fight. In the main, however, we are trying and we are accomplishing. Many diseases have been conquered and the span of life has been lengthened, and this without the aid of very many of those vendors of profitable products whose watch word is halitosis, for Lister, though less well known, has served humanity better than has Listerine.—Boston M. & S. J., 198:870, 1928.

NEW ORLEANS

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LEGISLATIVE MATTERS.

The State Committee on Public Policy and Legislation, under the able guidance of Dr. B. A. Ledbetter, deserves the hearty congratulations of every medical man in the State of Louisiana, be he a member of the Society or not. At the expense of an immense amount of time and labor, this most efficient committee has been responsible largely for the checking off of many pernicious bills which have been presented at the last session of the State Legislature. These men have worked diligently and faithfully, have neglected their other activities in order to give time and energy to their duty to their fellow practitioners.

They have attended the sessions of the Legislature, have appeared before committees, and have spent days at Baton Rouge when necessarily their income from medicine must cease while they are away from their homes. They have been responsible for the squashing of such bills as the Chiropractic Bill before it got out of Committee, appearing there at the sessions of the Committee explaining fully and cogently just why such bills were harmful. To Dr. Ledbetter and his able co-workers, Dr. Leon J. Menville, Dr. Roy B. Harrison, Dr. P. T. Talbot, Dr. E. L. Leckert, the Committee from the Orleans Parish Medical Society, headed by Dr. Jules Dupuy; the Louisiana State Board of Medical Examiners, and others who have assisted, the thanks of the medical profession are due.

It seems like a very small thing indeed to ask the members of the Louisiana State Medical Society to contribute \$1.00 in part towards the expenses of these men while in Baton Rouge. It might be borne in mind that only a relatively small percentage of this amount is actually used to defray the expenses incurred directly by the members of the Committee. The greater part of it goes to pay for legal advice and counsel, secretarial help, telegrams, postage, stationery and so on. Surely, no dollar that the medical man in this State spends in the coming year will yield him a greater dividend than this one small dollar which he is asked to give to meet these expenses. Actually the momentary cost of what the members of the Society might have to pay for the value received, would be ten or twenty fold greater were it not that their services were given voluntarily and gratis by all those who helped at Baton Rouge.

Senate Bill Number 241 is probably the most important one that was introduced in the State Legislature from the point of view of the physician. The repeal of the narcotic act was also important, as it will obviate considerable time and trouble to

doctors of medicine. In addition to these bills, Senate Bills Numbers 115, 265, 100, 157, 234, and House Bills numbers 149, 501, 504, 302, 171, 388, 390, 705, 93, 414, 530, 354, 709, 315, all had contained certain features in which the medical profession were interested. It may be seen from a superficial view of the number of bills that were introduced relating to medicine and medical activities that the Committee had a very large job to carry through to a successful conclusion.

STATUS LYMPHATICUS.

Considerable healthy skepticism has arisen in the past few years in regard to the indefinite and about which little is known condition spoken of as status lymphaticus. More particular has been the growing conception that an enlarged thymus in a child dying of inexplicable cause is not responsible for the death of that child. Pathologists are appreciating the fact that enlargement of this gland, and the enlargement of the lymphoid tissue throughout the body, is a normal finding. Otolaryngologists have long appreciated that big tonsils are part and parcel of a child's makeup. Unfortunately the opportunity of examining the body of a child dead as a result of some traumatic cause rarely takes place. In the past the pathologists' ideas of a normal child have been gained from examination of children who have died from long continued wasting disease in which one of the salient features is the rapid atrophy of the lymphoid tissue. Marine*, in a recent paper, discusses the condition of status lymphaticus most fully. He concedes that there are probably a very small group of patients who have an anatomical abnormality evidenced by marked increase in the lymphoid tissue, small suprarenals, lymphocytosis, and hypoplastic aorta; the most important feature of this condition being the insufficiency of the adrenals, because Marine has found that removal of the adrenals is followed by a

much lowered resistance to toxins and poisons. He advances the idea that involution of the human adrenal cortex occurring after the child had been born may explain the condition which we speak of as status lymphaticus in young children. Under any circumstance this condition is very uncommon; the explanation for it is not entirely convincing; enlargement of the thymus is not a diagnostic sign of infallability; and certainly there is still much to learn about these inexplicable deaths which we have been wont to call status lymphaticus.

HISTORY OF THE LOUISIANA STATE MEDICAL SOCIETY.

The History of the Louisiana State Medical Society, made possible by a special act of the House of Delegates, is progressing rapidly and favorably under the able editorial guidance of Dr. Rudolph Matas. For the past three months Dr. Matas has had working under his direction a Secretary-Librarian who has already compiled a great many interesting and important data. The work will progress more rapidly and could be accomplished in much quicker time if the co-operation of the parish and district society secretaries was more wholehearted than it is. Considerable difficulty has been experienced in securing information from these sources. It is hoped that the Secretaries will appreciate that much of the worth of the volume will necessarily have to depend upon the aid that they can and will give.

A discouraging feature, which it is believed is due entirely to tardiness rather than to unwillingness, is the small number of prospective subscriptions. Less than one-third of the subscriptions which will make the work a financial success have been received. It is most earnestly hoped that the men who intend to subscribe to this interesting history of the activities of the Society will send in their subscriptions at the earliest possible moment. It will hearten and encourage the Committee materially to know that their work is appreciated.

*Marine, David: Arch. Path. and Int. Med., 5:661, 1928.

HOSPITAL STAFF TRANSACTIONS

SOUTHERN BAPTIST HOSPITAL.

June 12, 1928.

The regular monthly meeting was held June 12, 1928.

CASE OF MENINGITIS.

Dr. Charles S. Holbrook presented a very interesting case of meningitis. The patient was a little girl of eleven years. She was admitted to the hospital on the twenty-fifth of last month to the service of Dr. Carroll W. Allen. As soon as Dr. Allen saw the child he realized it was not a surgical condition, and called Dr. Holbrook in consultation. Her history, as it is recorded on her chart, is as follows: She came into the hospital complaining of chills and fever. The present illness began yesterday morning; that is, the day previous to admission, when patient had chills followed by high fever, and, at this time, there was some nausea and vomiting. Calomel was given, which was retained. She complained after this of pains in her back and generalized pains, especially in various joints. She has been in a mild stupor since yesterday morning. She has had very severe headaches several hours before her admission to the hospital.

When Dr. Holbrook saw the patient in the hospital, she was extremely restless, throwing herself backward and forward across the bed and was unable to co-operate. It was impossible to get an answer from her or to get her to talk. She complained of pains in the head and of almost anything. Even a touch on the abdomen hurt her. The marked symptoms were restlessness and cloudy memory. She had rather high fever, 103°. A blood picture showed the leukocyte count to be 37,000, of which 90 per cent were neutrophils. On examination it was found that her neck was stiff. A spinal puncture was taken immediately under gas anaesthesia. The fluid was decidedly cloudy. Examination showed it to have about one thousand cells, almost entirely neutrophils. Then, about one hour from this, another anesthetic was given the patient and 15c.c. of serum was injected. The next day another 15c.c. of serum was given, at which time it was again necessary to give an anesthetic. After this, however, it was not necessary to give a general anesthetic on subsequent occasions. After the fourth intraspinal treatment the spinal fluid was negative. After the first treatment of serum she was very much better. Her temperature was less, and she became conscious and co-operative. The fluid was so clear after the fourth dose that the fifth dose was hardly necessary. She has gradually gotten better. Now, the patient is quite well and is going home tomorrow.

Dr. Holbrook feels that the splendid result is largely due to the early recognition of an unusual disease in the small town in which the child lived. Had the child waited one, two or three days longer, irreparable damage would have been done, and if she would have come through with her life, there would have been an aftermath of deafness, lameness, blindness, or imbecility.

Dr. Walter J. Otis, in discussing Dr. Holbrook's case of meningitis, said he thought Dr. Holbrook has covered the situation very thoroughly, and has treated this disease correctly. The aftermath is what must be guarded against, the effects after the disease is supposed to have cleared and the patient has apparently recovered. The child appeared to him to be a case more of a choreic type. He noticed two or three tick-like movements as she sat in the chair. It is probably a reticulis, which is very painful.

Dr. Carroll W. Allen said he saw the child one afternoon and immediately recognized its nature. He called for Dr. Holbrook to see the patient immediately, and Dr. Holbrook responded in a short while.

Dr. Charles S. Holbrook stated another interesting point in this case, which he did not mention. The lady who came in the room with the child tonight has a son who attended college. While in college the boy developed meningitis and it was several days before a diagnosis was made and treatment given. The boy recovered, but his mental condition has never been well and he is totally deaf. He was back home in the same town as this child for sometime, about eight or ten weeks, before this child had become ill. There may have been some connection between this boy as a carrier and the development of meningitis in the child. The authorities of the town made cultures of the family and those who came in contact with the boy, but no organisms or carriers were found.

SECOND CASE OF MENINGITIS.

Dr. Charles S. Holbrook presented a second case of meningitis. Mr. J. P., medical student, aged 24 years, admitted to hospital May 9, 1928.

On May 8, in the afternoon, patient complained of chilly sensation and of feeling feverish. Temperature was taken that afternoon and was 102°. There was moderate headache, general malaise, and pains over the body. The symptoms were similar to those of a beginning influenza, or other infectious disease. The above symptoms increased over night, until he was admitted the following morning to the hospital.

Examination showed a well developed and well nourished acutely ill young man. The general examination was negative, except for slight rigidity of the neck and a moderately well developed Kernig's sign on both sides.

A spinal puncture was done and the fluid was found to be under considerable pressure. There was a distinct cloud. The cell count was 1,000; globulin—four plus; Wassermann—negative; intracellular gram negative diplococci were found in moderate numbers. The blood picture on May 9 was 20,900,—96 per cent neutrophils. May 10, the day of the spinal puncture, there were 16,000 leukocytes with 93 per cent neutrophils.

After finding the above mentioned organisms in the spinal fluid, another spinal puncture was immediately done and 30c.c. of polyvalent anti-meningococcic serum was given intraspinally and 30c.c. intravenously. May 11, 25c.c. of spinal fluid was removed. It was clouded, but seemed less so than on the previous day. Thirty c.c. of serum was given intraspinally and 30c.c. intravenously. His mental condition, which had been decidedly clouded the first few days, showed a marked improvement. He was perfectly clear in every respect. On the twelfth of May and also the thirteenth, 30c.c. of serum were given intraspinally each day. At this time the fluid was decidedly less clouded and had taken on a greenish tinge. No serum was given on the fourteenth. On the fifteenth, the spinal fluid appeared very clear. Thirty c.c. of serum was given intraspinally. It is felt that this latter dose could have been omitted.

Spinal punctures were done every day for two or three occasions. The fluid remained clear. May 25 the patient was discharged.

Cultures were attempted from the blood with negative results and the organism could not be grown from the spinal fluid.

Upon admission, temperature was 104°; pulse 120. On the tenth, temperature was 104.6°; pulse 130. At this time the serum was given. The temperature fell to 100.2°, and did not rise again above this, except the time when he had a serum reaction. Cultures from the nose and throat did not show any organisms similar to those found in the spinal fluid.

The patient made a complete recovery and was able, within three weeks, to leave the hospital to finish his final examinations in medicine. He had an internship, but has been advised to take a vacation of ten or twelve weeks before entering into this work.

A REVIEW OF THE USE OF THE SEDIMENTATION RATE AS EMPLOYED IN THE SOUTHERN BAPTIST HOSPITAL.

Dr. Edwin H. Lawson said the procedure known as the estimation of the sedimentation rate of erythrocytes is by no means an innovation, for Galen noticed that the settling of erythrocytes was more rapid in cases of infection than in the blood of normal individuals. This observation has since been noted by other men, such as John Hunter, Virchow, Fahraeus, Hober, and, recently, Linzenmeier, Cutler, and Westergreen have each devised a technic for the estimation of the sedimentation rate. The technics vary only in the type of tube used and the percentage of anti-coagulant, namely, sodium citrate, used. All of the technics consist of mixing the various amounts of blood, with an anti-coagulant, and of placing this solution of blood and citrate in a tube and noting the time required for the erythrocytes to settle. Two types of tube most generally used are the Linzenmeier and Cutler types. The former requires a small amount of blood, but the latter a graphic method, is more useful in the follow-up work, as the increase or decrease in sedimentation rate, using this method, can be seen at a glance.

The estimation of the sedimentation rate has been used in quite an assortment of cases, being most frequently used in the prognosis of such diseases as tuberculosis, and other pulmonary conditions, appendicitis, and most particularly acute pelvic infections. Polak has advised the use of the sedimentation rate as an indication of the time to operate on pelvic infections, and has found that following a pelvic operation a low sedimentation rate is an early index of a beginning peritonitis or perimetritis. In tuberculosis, the sedimentation rate is directly proportionate to the activity of the disease; and in acute polyarthritis the sedimentation rate is directly proportionate to the clinical symptoms.

The following is a list of cases in this hospital with an estimation of the sedimentation rate, using the Linzenmeier technique:

Mrs. T. Diagnosis: Acute pelvic inflammatory disease. Four determinations made; two of which ran eighteen minutes, and two of which ran twenty minutes.

Mrs. R. Diagnosis: Fibroid. Forty minutes.

Mrs. P. Diagnosis: Chronic endometritis. Seventy minutes.

Mrs. S. Diagnosis: Acute infectious arthritis. Three determinations made: two of which ran fourteen minutes, and one of which ran thirty-two minutes.

Mrs. M. Diagnosis: Chronic myocarditis. Fifteen minutes.

Mrs. L. Diagnosis: Influenza. Twenty minutes.

Miss R. H. Diagnosis: Acute lymphadenitis. Sixty minutes.

Miss H. Diagnosis: Suppurative pleurisy. Ten minutes.

Mr. D. Diagnosis: Acute appendicitis. Twelve minutes.

An analysis of these cases each show that in general the rapidity of the sedimentation rate is directly proportionate to the acuteness of the illness. In most of these cases the sedimentation rate is of diagnostic and prognostic value when considered in conjunction with other laboratory findings and the clinical symptoms, that there is some relation existing between the severity of the disease and the increase in the sedimentation rate, and that it may be of some aid to the surgeon in deciding when to operate in infectious cases.

Dr. Lawson also presented three charts, representing graphically the sedimentation rate in various diseases, the relation of the sedimentation rate to the white cell count and a drawing of the two types of tube most generally used.

DISCUSSION.

Dr. Carroll W. Allen, in discussing this subject, stated that the sedimentation rate is a clinical aid in studying the prognosis of a case and in determining the time to operate. He suggested that if this test was intelligently used it would offer an extensive range of usefulness.

Dr. Thomas B. Sellers said he has run a sedimentation rate test on all of his pelvic infectious cases for several months and on two ectopic cases. He also said that in an interview with an out-of-town doctor, he learned that the sedimentation test was run routinely in his hospital on all pelvic infectious cases. It is found to be more dependable than the blood count as a prognostic and a diagnostic agent, though it does not necessarily eliminate the blood count at all. The sedimentation test has been used also routinely to determine the time to operate. Many times in these pelvic cases with a perfectly normal temperature and a perfectly normal blood count there is found, upon opening the abdomen, exudate and friable adhesions. It is often realized, after opening the abdomen, it would have been much better to have allowed these cases to rest two, three, or four weeks longer. The sedimentation test usually settles this particular type of case and determines the time to operate. The rule is that in sedimentation rates of less than one hour, no surgery could be done.

There is another interesting point in the sedimentation rate. It is supposed to be normal in ectopic cases and rapid in infectious cases. If

this is true, and in two cases that Dr. Sellers has tried this fact has been borne out, it is of great diagnostic value in differentiating between ectopic and subacute pelvic diseases. One big advantage in the sedimentation rate is that it can be used in the rural districts without the use of the microscope. Besides this, it can be used in any doctor's office with a great deal of ease if the doctor is willing to take the blood and have an assistant read the sedimentation time every five minutes, or fifteen minutes.

Dr. H. W. Kostmayer stated that he has had a limited experience with this test. He agreed with Dr. Sellers that the sedimentation rate is probably the most valuable method we have of indicating the resistance of the patient, or, another way of stating it, the prognosis, and especially is it of value in determining the time to operate.

Dr. William D. Phillips said that four or five years ago, when this sedimentation test was first suggested, he used it quite a bit in his service at Charity Hospital. At that time he had much trouble in securing the co-operation of the Internes Staff. One great advantage of this test is the comparatively simple technic. Dr. Phillips discharged one of his patients the other day from this hospital with a sedimentation rate of over an hour. Accordingly, it would have been safe to operate. But there was one point he could not get away from. Dr. Phillips suggested, not as a discouragement of this sedimentation rate, but rather as a caution in using it, that we must not overlook the temperature chart. The patient that was discharged from this hospital the other day was not operated upon, even though the sedimentation test would indicate that operation was safe, because she continually ran temperature. Sometimes there is too much enthusiasm when using this test, and the temperature charts are overlooked. If this test is used with other scientific methods, it should be of great value.

Dr. Edwin H. Lawson, in answer to a question, read the following excerpts from reprints:

Gram found that the amount of fibrogen increased with a more rapid sedimentation rate.

Fahraeus and Hober decided that the increase in agglutination of the erythrocytes was primarily due to a change in the electric tension between negatively charged erythrocytes and positively charged bodies in the plasma.

Smiley explains the increase in the rate as due to an increase in the fibrogen and globulin with a relative decrease in the albumin content of the plasma. The above factors, hence, give an increase in the viscosity and diminution in surface tension of the plasma and in the erythrocytes, a diminution in the negative electrical charge

with a change in the surface tension and an increase in the viscosity. He also noted that the temperature affected the rate as he found that the sedimentation rate was more rapid at incubator temperature than at room temperature.

Cooper found that as the cholesterol contents of the blood increase, the sedimentation rate becomes more rapid. He also found that defibrinated blood gives a slower rate after defibrination than previously.

Rubin explained the rapidity of the rate as due to tissue destruction, and that the bacterial toxins, products of protein catabolism and inflammatory products accelerate the rate; therefore, the more acute the condition, the more rapid the rate; the less virulent and numerous the bacteria, the less variation of the rate from normal.

In answer to another question, he said it has been his experience and it has been the findings of others that in cases of acute pyelitis there is a low sedimentation rate, as is the case in all acute inflammatory diseases.

AN UNUSUAL CASE.

Dr. H. W. Kostmayer presented a case that was very interesting to him because of the startling outcome. Mrs. P. A. H., aged 34, a mother of two children, had the last one ten years ago. She gave a history after child of ten years ago, of disturbed menstruation profuse and prolonged uterine bleeding, and about eight months ago she began with a profuse discharge, more pronounced pain, finally having to take to bed. He made a diagnosis of pelvic inflammatory disease and put her to bed for six weeks with usual treatment of icebags and douches. She was then taken to the hospital, and, on admission, her leukocyte count was found to be 10,000. Thereafter, it was normal. Sedimentation time was most favorable. There was a normal leukocyte count with some mobility in pelvis, which had been previously quite immobile. Her urine showed a few pus cells and faint trace of albumin. No phthalein test was done, as the kidneys did not interest him much. Dr. Kostmayer then operated on her, and, on entering the abdomen, through a midline incision between the umbilicus and pubis, pelvic organs were found to be matted together with both large and small bowel adherent to them. The abdominal contents were walled off, and, after some tedious dissection because of bleeding, the pelvic organs were freed up and a supravaginal hysterectomy done. The adnexa were removed first because of bleeding, after which a supravaginal amputation of uterus was performed. A fairly good peritoneal toilet was secured, after which the appendix was sought. This was found to extend upward behind the cecum and a retrograde operation was necessary for its removal. Cat gut ligature, linen purse string used, and

cautery used for amputation. The abdomen was closed with cat gut, reinforcing silk worm sutures and silk worm was used in skin.

This patient was operated upon on Saturday morning and left the table in what was considered a very fair condition. Dr. Kostmayer was not concerned about her condition at all, but on the way down to the patient's room, the anestheticist who accompanied the patient, noticed the pulse had become rather weak. Dr. Kostmayer was immediately notified of this and went to see her. Patient was then infused. That night she had become so much the picture of hemorrhage that he feared something was loose in her abdomen. She was given 450 c.c. of blood. She became somewhat better, but later, towards morning, she died. An autopsy was secured and the autopsy report showed an acute toxic nephritis, and fatty degeneration of the liver.

The startling thing about this case to Dr. Kostmayer is, that he considered this an absolute safe risk, and yet she died within twenty-four hours after operation. Incidentally, there was on about two drams of blood in the peritoneum at the peritoneal toilet was good. There was no surgical accident, and yet this woman of thirty-four years died. It was a startling shock, to say the least.

Dr. William D. Phillips asked what the functional kidney test showed. He cited a case of his of sometime ago, which impressed upon him the importance of paying very careful attention to the urinary findings. A patient of his was brought into the hospital for plastic work and the interne urged him not to take her at that time as the blood examination showed some slight anemia and the urine examination was below normal. Dr. Phillips did not think this would give any trouble and proceeded with the operation. The patient died of acute nephritis. This incident has taught him a lesson and now when he has a case showing low functional kidney test or other evidence of nephritis, he makes a more careful investigation before proceeding with the operation.

Dr. Thomas B. Sellers asked if it were possible for a liver to change in that short time—practically twenty-four hours. These types of cases are worth a great deal to surgeons as they mean so much to them in trying to solve the problems they meet.

Dr. Carroll W. Allen said that the rapidity of the development of the symptoms was startling, and brings to mind a similar case. The patient was a woman, treated about a year ago. She was quite robust and in excellent health. A cholecystectomy was performed, the patient's condition was apparently very good for twelve or twenty-four hours, but still there was something

about her that caused some uneasiness. She died about seventy-two hours. The autopsy report showed a fatty degeneration of the liver. In this particular case, all laboratory tests were run before operation and were normal, the physical condition was excellent, and yet this patient went out with fatty degeneration of the liver from no assignable cause.

Dr. Edwin H. Lawson said that in the case that Dr. Allen referred to, a diagnosis of hepatitis associated with alkalosis was made after a consideration of the symptoms of the case and the carbon dioxide combining power, which in this case was well above eighty. His attention was first directed along these lines by Heyd of New York, who classified death following cholecystectomies into three classes: First: Those cases which have had previous operations on the gall bladder and which at the second operation, have had drainage of the gall bladder with more or less manipulation of the pancreas. Deaths in these cases are possibly due to a pancreatic ferment or toxin eliminated as a result of trauma of the pancreas. Second: Cases which show acute yellow atrophy of the liver or portal cirrhosis and die from liver exhaustion. Third: Deaths due to hepatic insufficiency, which is associated with alkalosis.

This case of Dr. Kostmayer's appears to be a death due to some severe toxemia as is shown by the destruction of the cells lining the tubules of the kidneys and the acute toxic epinephritis. The location of the degeneration in the liver would suggest toxemia occurring somewhere along the tributaries of the portal vein. Associated with the above, such degeneration of the kidneys caused by toxins of either bacterial or chemical origin and the sub-group of the latter would include the products of protein cleavage. While the death cannot be definitely and concisely ascribed to any cause, it is most probably due to the toxemia produced by the protein cleavage products.

Dr. H. W. Kostmayer, in answer to Dr. Phillips, said the two pre-operative steps he did not take in this case were to have a phthalein test done and to have a chemical study of the blood made. Because of the excellent general health of the patient, her age, and a normal urinalysis, a phthalein test was not reconsidered. Coupled with a normal temperature there was a slow sedimentation time. If there had been a delay of forty-eight hours or seventy-two hours following operation before she died, he could have understood that running a P. S. P. might have saved her life, if she had a poorly functioning kidney, but Dr. Kostmayer thinks no matter what the condition of her kidney, the failure of the organs of metabolism was primarily responsible. This case was either one of hemorrhage, which was doubted be-

cause of the technic employed, or it was a case of complete collapse of the organs of metabolism. It seems her metabolic organs just stopped. The rapidity and abruptness of what seemed to be a safe risk completely disarmed and startled Dr. Kostmayer.

THE PRESBYTERIAN HOSPITAL CLINICAL SOCIETY.

The Society held its monthly meeting on the last Thursday of the month. The scientific program contained a discussion of several interesting cases and an interesting presentation of several interesting presentation by Dr. C. G. Cole on Polyposis of the Gastro-Intestinal Tract. Dr. Cole's short but interesting paper was based on personal experience with four such cases—the histories of which were presented—and a discussion of the various signs and symptoms which might lead to the diagnosis of these cases. He pointed out that the most usual type is the adenoma. Lipomata, fibromata, and myomata have also been reported. The growths may be pedunculated or sessile; and they may be submucous or subserous.

According to the author polypoid adenomata of the gastro-intestinal tract is a rare condition. The clinical picture varies considerably; and a clinical diagnosis is most difficult. Very frequently the condition is only discovered at autopsy. Unless these tumors acquire a sufficiently large size they are rarely palpated. The fact is that they seldom become sufficiently large to be palpated. These growths may cause intussusception, obstruction, or bring about a severe hemorrhage. Occasionally they may also undergo malignant degeneration. Rarely these tumors slough off and are passed per rectum. At times these tumors are only discovered at operation.

Dr. Cole gave the case histories of four cases. They occurred in the stomach, small intestine, cecum, and sigmoid flexure.

In the discussion, which followed, Dr. D. C. Browne stated that he has recently been able to collect only twenty-eight of these cases from the literature, in which the stomach was involved, and accepted Dr. Cole's case as the twenty-ninth. He also brought out the fact that while the tumors are usually single in the stomach and the small intestine, the opposite is true for the large intestine. Their multiplicity in the large intestine makes treatment in this location very difficult and unsatisfactory.

A communication from the Board of Directors to the Staff expressed appreciation on the part of the former, for the confidence reposed in them. It was also brought out that the building program

is being strictly adhered to and going along without interruption. This meeting was the last until the fall, when they will be resumed.

FRANK L. LORIA, M. D.

THE CHARITY HOSPITAL SURGICAL STAFF.

Because of the hot summer months the regular meetings have been discontinued until the fall of the year. A case of unusual interest was reported at the last meeting by Dr. Alton Ochsner. This was a patient with cerebro-spinal rhinorrhea who made an uneventful recovery following an exploratory craniotomy, and has remained well until the present.

The patient was a woman thirty-six years of age, who three weeks before entry to the Charity Hospital, while getting out of bed noticed a profuse discharge of clear serous fluid from one of her nostrils. This flow was continuous up to the time of admission, when she was sent into the ear, nose, and throat service. Her complaint, in connection with this condition, was nausea caused by the salty taste of the secretion, as it ran back in the mouth and throat. There were also severe and persistent headaches—the latter, however, were not coincident with, but antedated the rhinorrhea by six or eight months.

Checking up the quantity of fluid discharged over a twenty-four hour period, measured at hourly intervals, some very interesting results were obtained. The amounts varied considerably, from 5 c.c. to 70 c.c. per hour. It was clear, watery in character, and the discharge was most profuse after eating. She was observed over a period of several weeks during which time careful neurological examinations were made. The neurologists found very little except for a diminution in cutaneous sensation over the left side of the body, and a diminished left corneal reflex. Roentgen-ray of the skull showed a defect in the anterior

cerebral fossa; and because of the symptoms, headache and apparent defect in the skull, it was thought she had a tumor of the anterior cerebral fossa. An exploratory craniotomy was done, exposing the anterior fossa of the right side according to the method of Cushing. The entire fossa was explored, but no pathology could be demonstrated. There were a few adhesions between the dura and the floor of the anterior cerebral fossa. Exploration was carried out as far back as the middle of the cerebral fossa, and from the median to the lateral portion of the skull. Since nothing could be found, and because of her headaches and increased pressure (18 mm. of mercury spinal fluid pressure) it was decided to do a decompression. The dura was left opened and the osteoplastic flap replaced.

At first the patient did well, and had only a slight discharge from her nose. After the first day the rhinorrhea stopped. On the tenth day she had a headache. The spinal pressure was found to be the same. Ten c.c. of fluid were removed. From that time she became free of headache; and until one week after discharge, when she was last heard from, there was no recurrence of the headache nor the rhinorrhea.

What the condition was we are at a loss to say. The only explanation of the results obtained that we can give is that it was probably due to a plastic exudate resulting from the operative trauma, sealing the small fistulous opening which prevented the escape of fluid. What the ultimate result is going to be we are at a loss to say. The case is presented merely as an unusual one; and in which no pathology could be found. Dr. Granger stated that the adhesions between the dura and the floor of the anterior cerebral fossa would have produced the same picture as that due to the tumor producing the erosion. No cause could be determined for the increased cerebro-spinal pressure.

FRANK L. LORIA, M. D.

ROUTINE CHOLECYSTOGRAPHY.—It would appear (1) that the routine application of cholecystography by the oral route is a very valuable procedure, accessible to any radiologist, and readily used with the routine gastro-intestinal patient.

(2) That approximately one-half of the patients referred for gastro-intestinal examination will show evidence of functionally disabled gall bladder.

(3) That the positive evidence of gall bladder from oral cholecystography will be found as correct as any interpretation in the domain of radiology.

(4) That the gall bladder which fails to outline (inconclusive in this series) is usually, but not always, a pathologic organ.

(5) That a diseased gall bladder may function normally, and that approximately 30 per cent of the patients proven by operation to have cholecystitis showed normal function with the Graham dye test.

It is possible that the demonstration of a normally functioning gall bladder in the presence of clinical symptoms of cholecystitis may have value in clinical management. It is conceivable that a gall bladder which can still empty itself under the stimulus of food may be within the realm of medical treatment, as compared with one which is so functionally crippled that it can no longer empty within a reasonable time, and which, therefore, becomes a useless organ demanding surgical removal.—Watkins, W. W., and Mills, H. P., *Radiology*, 9:91, 1928.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the past month the Society has held its regular Board Meeting and the Second Quarterly Executive Meeting.

At the Quarterly Executive Meeting reports of the Special and Standing Committees were read. The following resolution presented by the Condolence Committee was adopted:

Whereas, by the Will of God, Dr. Nathan Eisenmann, our confrere, was taken from among us.

Therefore, be it resolved, That this Society desires to express to the family of Dr. Eisenmann its regrets and sincere sympathy in its bereavement.

The following members were elected to membership: Active Members: Drs. Jonas W. Rosenthal, Seward H. Wills, Ralph C. Cross, F. J. Rohmer and Chas. S. Wood. Interne Members: Drs. M. W. Brown and E. L. Gill.

Dr. J. A. Colclough was reinstated to Active Membership.

This executive meeting is the last meeting of the Society until October.

It is with regret to report the death of Dr. H. S. Cocram, one of our honorary members.

TREASURER'S REPORT.

Actual Book Balance, 5/31/28	\$1,492.62
Receipts during June	1,175.80
	<hr/>
	2,668.42
Expenditures	1,185.69
	<hr/>
	1,482.73
Outstanding checks	195.04
	<hr/>
	1,677.77
Receipts since Bank Balance	132.69
	<hr/>
Bank Balance	\$1,545.08

LIBRARIAN'S REPORT.

Forty-four books have been added to the Library during June. Of these 13 were received from the New Orleans Medical and Surgical Journal, 6 by subscription, 12 by binding, 2 by purchase and 11 by gift. Note is made of new titles of recent date in the list herewith appended.

One reference list on periotonsillar abscess has been prepared and added to the file. Fifty-four pamphlets have been catalogued and added to our collection. The shift allowed by our new shelving has been partially completed, greatly relieving the congestion of the shelves, and giving room for growth in the Journal files. The reference work has continued through the hot weather to a gratifying extent, calls for study in connection with particular case work being in the majority. This use of the Library in every-day practice is a most promising phase of the work, and such calls either in person or by telephone are given immediate attention.

Gifts of Journals and reprints have been received from the following sources and have been gratefully acknowledged:

Drs. Roy B. Harrison, E. D. Martin, I. I. Lemann, J. H. Musser, Arthur Weil, E. C. Samuel and the Cincinnati Medical Library.

NEW BOOKS.

Coudry—Special Cytology. 2 v. 1928.

Nelson's Loose-Leaf Living Surgery. v. 5-6. 1928.

N. Y. University and Bellevue Hospital Medical College—Collected reprints from the Department of Experimental Surgery. 1926-27-28.

Louisiana State Board of Health—Sanitary Code. 1928.

Rockefeller Foundation—Methods and Problems of Medical Education. 1928.

Lorland—Ultra-violet Rays. 1928.

Rivers—Filterable Viruses. 1928.

Ross—Post-mortem Appearances. 1928.

Tylecote—Diagnosis and Treatment in Diseases of the Lungs. 1927.

Rehfuss—Diagnosis and Treatment of Diseases of the Stomach. 1927.

Crisp, ed.—Ophthalmic Yearbook. 1927.

Petty—Diabetes. 1926.

Foster—Examination of Patients. 1928.

Stewart—Compend of Pharmacy. 1928.

Stitt—Practical Bacteriology, Blood Work and Parasitology. 1927.

Jordan—General Bacteriology. 1928.

H. THEODORE SIMON,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

MEETING OF THE SOUTHERN MEDICAL ASSOCIATION.

Of interest to the members of the Louisiana State Medical Society is the approaching Twenty-second Annual Meeting of the Southern Medical Association. This meeting will be held in Asheville, North Carolina, November 12-15. The Association selected for their meeting place one of the most magnificently beautiful spots in this United States, where a large number of good hotels are prepared and equipped to take care of many more than usually register at the Association Meetings.

The program commences on Monday, November 12, with clinics arranged by the local profession. In the morning these will be held at the Government Hospital at Oteen, the largest hospital for tuberculosis in the Veterans' Bureau. Afternoon clinics will be held at the City Auditorium, Asheville. On Tuesday there will be special clinics and demonstrations given by the leading practitioners of the South. The last two days of the meeting will be devoted to the scientific program of the seventeen sections.

This Annual Meeting of the Southern Medical Association has become the second largest medical meeting in the United States, the American Medical Association only surpassing it in number of men in attendance. The Association meeting deserves all that it has accomplished and more. Every physician of the Society who could possibly get away to attend this getting together of Southern doctors should do so. The scientific program and the social activities insure an instructive as well as a pleasant time.

ST. TAMMANY PARISH MEDICAL SOCIETY.

Meeting of St. Tammany Parish Medical Society, July 13, 1928, at St. Tammany Hotel, Mandeville, La.

Meeting called to order by the President, Dr. F. F. Young, with Secretary, Roland Young, at his post. On roll call the following answered: F. R. Singleton, J. F. Polk, J. K. Griffith, R. B. Paine and A. G. Maylie. Dr. Herrin, of Bush, La., was an invited guest and a prospective member.

The President urged better attendance and complimented the Slidell doctors on their regular attendance.

The minutes of the meeting of May 11 and June 22 were read and adopted.

Dr. Roland Young then gave a clinical case paper on *tuberculosis dorsalis* complicated with an arthritis of the rim of the ilium between the anterior and posterior iliac spines and of the third and fourth dorsal vertebrae as shown by radiograms. Symptoms and treatment was brought forward in detail. This clinical case paper proved very interesting and discussions followed by Drs. Paine, F. F. Young, Sr., and J. K. Griffith.

Dr. Paine, in citing clinical case discussions, mentioned a woman who was stabbed into abdomen five nights ago with intestines protruding and told of his replacement of bowel and sewing up of wound. The case was then sent immediately to the hospital in New Orleans and said when last heard from that afternoon was still living.

Communications were then read by the Secretary-Treasurer. One letter from the Secretary-Treasurer of the State Society asked for an extra special tax of one dollar on each member as ordered by the executive committee to defray unusual expense of the committee of the State Medical Society on publicity and legislation. The Secretary was instructed to go ahead and get this money out to Dr. Talbot.

Application to membership of Dr. Herrin, under unfinished business, was then in order and investigating committee reported its approval of applicant. Vote was taken and there was no black-ball—all present voting.

ROLAND YOUNG, M. D.,
Secy-Treas.

U. S. P. H. S. NOTES.

Surgeon General G. W. McCoy has been ordered to proceed from Washington, D. C., to Carville, La., for conference relative to cases of leprosy.

Assistant Surgeon (R) A. P. Rubino. Relieved from duty at Marine Hospital, New Orleans, La., on July 5, and assigned to duty at Marine Hospital, San Francisco, Calif.

A. A. Surgeon C. P. Munday. Relieved from duty at Marine Hospital, New Orleans, La., and assigned to duty at Marine Hospital, Carville, La.

Assistant Surgeon P. A. Neal. Relieved from duty at Marine Hospital, New Orleans, La., and assigned to duty at Marine Hospital, Mobile, Ala.

Assistant Surgeon W. L. Barnes. Relieved from duty at Marine Hospital, New Orleans, La., and assigned to duty at Marine Hospital, San Francisco, Calif.

Assistant Surgeon L. C. Watkins. Relieved from duty at Marine Hospital, New Orleans, La., and assigned to duty at Marine Hospital, Norfolk, Va.

Assistant Surgeon R. G. Townsend. Relieved from duty at Marine Hospital, New Orleans, La., and assigned to duty at Marine Hospital, Baltimore, Md.

Surgeon (R) O. E. Denney. Directed to proceed to Jacksonville, Fla., and other points in Florida, as may be necessary, to assist the State Health officer in making diagnosis of suspected lepers and to accompany patients diagnosed as lepers to Marine Hospital, Carville, La.

Examination for candidates for commissions and assistant surgeons, U. S. P. H. S., will be held at New Orleans, November 5, 1928. Requests for further information should be addressed to Surgeon-General of the U. S. P. H. S., Washington, D. C.

The following assistant surgeons, Reserve Corps, United States Public Health Service, have been ordered to active duty and directed to New Orleans, La., Marine Hospital, effective June 28, 1928:

Drs. Jacques P. Gray, William F. Ossenfort, Kenneth R. Nelson, Joseph O. Dean, Herbert G. Brehm, Ivan W. Steele, Oswald F. Hedley, James W. Bryan, James T. Jackson, Walter P. Griffey, Vane M. Hoge, Raymond L. Evans, Russell S. Wolfe, Guy V. Gooding and Joseph W. Christie.

SIXTH DISTRICT MEETING.

The tenth annual spring meeting of the Sixth District Medical Society was held June 27th at Our Lady of the Lake Sanitarium, Baton Rouge, Louisiana:

Dr. T. C. Paulson was elected president to succeed Dr. A. G. Maylie. Dr. Guy Riche was elected vice-president, Dr. T. J. McHugh was elected secretary-treasurer, and Dr. Tom S. Jones as delegate to the Louisiana State Medical Society meeting and the president as alternate.

Drs. Wm. Scheppegrell and N. F. Thiberge presented talks on Hay Fever and Asthma. The discussion of these papers was opened by Dr. J. A. Carruthers of Baton Rouge.

A delicious luncheon was served by the hosts of the Sanitarium after which a Women's Auxiliary was formed.

The scientific program of the afternoon was devoted to the subject of Cancer of the Breast, the diagnostic, roentgenological, pathological and surgical point of view.

Drs. R. G. McMahon, Lester Williams, T. Spec Jones and H. T. Nichole led the discussion.

The entire day was voted a great success by the forty members of the organization who were present at the scientific and social programs of the day.

At the regular semi-annual meeting of the Sixth District Medical Society, held at Baton Rouge, La., on June 27, 1928, this self-explanatory resolution was unanimously adopted:

"Whereas, the official list of Physicians, Surgeons and Midwives, as published by the Louisiana State Board of Medical Examiners, contains no mark nor sign to differentiate between white and colored people, and,

Whereas, said failure to differentiate is repugnant and unsatisfactory to the members of this Society, as probably to the entire medical profession of the State of Louisiana, therefore, be it

Resolved, That the Louisiana State Board of Medical Examiners be and is hereby earnestly requested to adopt some form, mark or sign to designate the whites from the colored people in the aforementioned list and that the attention of the Board be called to the American Medical Directory published by the A. M. A., wherein the abbreviation 'col.' is used immediately following the names of colored people; and be it further

Resolved, That the President of this Society be and is hereby directed to communicate these resolutions to the Louisiana State Board of Medical Examiners, forthwith."

Respectfully,

A. G. MAYLIE, M. D.,

Past President, Sixth District Medical Society.

At a meeting of the Third District Medical Society, held in St. Martinsville, La., June 28, Dr. H. W. E. Walther, of New Orleans, read a paper on the Modern Treatment of Gonorrhea.

Dr. Charles J. Bloom, Professor of Pediatrics with the graduate school of medicine of the Tulane University of Louisiana, delivered an address to the Washington State Medical Society on June 28, 1928, with Ileocolitis as the subject.

LOUISIANA STATE PEDIATRIC SOCIETY

The regular meeting was held at Baton Rouge, April 9, 1928, with L. R. DeBuys, M. D., president, in the chair.

The question of continuing the organization was brought up and it was decided that there is a distinct place for such an organization as the Louisiana State Pediatric Society. The society then proceeded with the scientific program.

The first paper, *Status Inversus Viscerum Totalis*, was presented by Dr. DeBuys. It was discussed by Drs. Naef and Signorelli.

The second paper, *A Translation of a Report Upon the Research in Relation to the Bacillus Calmette-Gerin*, by Dr. A. Bocchimi of the University of Perugia, Italy, read by Dr. Signorelli. It was discussed by Drs. Williams, Naef and DeBuys.

The third paper was read by Dr. Williams on Food Edema. It was discussed by Drs. DeBuys, Naef and Signorelli.

The fourth paper, *Congenital Hemangioma*, by Dr. Loeber, was read by title.

The fifth paper, *Ichthyosis*, read by Dr. Naef. It was discussed by Drs. Signorelli and Williams.

The society then went into its business session.

A verbal report upon the society was made by the president, Dr. DeBuys, who gave reasons for its existence and suggestions for its development.

There were no reports from committees.

Because so few members were present, no nominating committee was appointed and it was decided to allow the members present to act as a committee.

Under the head of new business, a resolution was presented as follows: "Because of adverse reports on experimental work conducted by several investigators, in connection with the Calmette anti-tuberculosis vaccine, also known as B. C. G. anti-tuberculosis vaccine, the Louisiana State Pediatric Society resolves: That the use of the B. C. G. anti-tuberculosis vaccine in the human be discouraged, until further positive evidence is obtained as to its efficiency and particularly as regards its harmlessness." This was unanimously carried. It was decided that this resolution should be published in the *New Orleans Medical and Surgical Journal*.

The next order of business was the nomination officers.

Dr. Signorelli placed in nomination Dr. L. R. DeBuys as president for the ensuing year. This was duly seconded and a motion to close the nomination was made, seconded and carried. The election was unanimous.

Dr. Williams nominated Dr. Emile Naef as vice-president. This was duly seconded and the same action as before was taken and Dr. Naef was unanimously elected as vice-president.

Dr. Naef placed in nomination Dr. C. T. Williams as secretary-treasurer. This was duly seconded and the same action as in the preceding

instances was taken and Dr. Williams was unanimously elected secretary-treasurer of the society.

The following scientific committee was elected for the ensuing year: Dr. C. T. Williams, chairman, and Dr. John Signorelli and Dr. Maud Loeber as the other members of the committee.

The time and place for the next annual meeting, in accordance with the by-laws of the society, will be the same place and time as the meeting of the Louisiana State Medical Society, and will be held on the Monday of the week of their meeting.

C. T. WILLIAMS, M. D.,
Secretary-Treasurer.

RESOLUTIONS ON THE DEATH OF DR. L. C. TARLETON.

Whereas, it has pleased the Almighty, on April 10, 1928, to remove from our midst one of the oldest and most highly respected members of the medical profession, the coroner of Avoyelles Parish, useful citizen, Dr. Leo Chester Tarleton, and

Whereas, in the death of this venerable gentleman, the medical fraternity, Avoyelles Parish and Louisiana, sustain the loss of a man whose loyalty to all classes and creeds was unswerving, the loss of a man who towered high in the estimation of those who value rectitude and who have a proper appreciation for the lofty attributes which makes the private and public career, such as that of Dr. Tareyton, honorable and beautiful, therefore be it

Resolved, That the Avoyelles Parish Medical Society, whose privilege and honor it has enjoyed with the affiliation and co-operation of so valuable a member—an active member for many, many years, an honorary member for the last few years—wishes to chronicle the death of a brother physician whose life has been an unbroken chain of religious, charitable and industrial performance, and whose noble deeds of professional ethics and kindness to all serve as a beacon light to posterity, therefore, be it further

Resolved, we extend the Society's sincerest condolences to his sorrowing widow and interesting family and that a copy of these resolutions be sent to them, a copy for publication in the *New Orleans Surgical and Medical Journal*, and a copy spread with our minutes as a permanent record.

WALTER F. COUVILLION,
SYLVAN DE NUX,
S. J. COUVILLION,
Committee.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

FACTORY INSPECTOR.

Believing that the State Board of Health has an opportunity to do a far greater service for the people of the state, especially the men, women and children who are working in the factories in ever increasing numbers, by inaugurating a great health program for the protection of the workers—our aim being to do everything possible for the promotion of the health, contentment, and happiness of the workers which will not only be a splendid service to these people but will also be profitable from a financial standpoint to the stockholders and owners of the various enterprises coming under the enforcement of child labor laws—and, because the Legislature has placed the responsibility for the administration of the act in the hands of the State Board of Health ("The State Board of Health shall appoint and may remove for cause a special inspector who shall have the title of factory inspector and who shall be a person having competent knowledge of factories and capable of performing the duties prescribed below"; "said inspector shall report annually to the secretary of the State Board of Health," etc.), we propose to carry on the work of the department according to Chapter 163, Laws of 1914, and in addition adopt the following course and program:

1. This department shall be considered the Bureau of Industrial Hygiene of the State Board of Health.

2. The factory inspector shall be a physician well trained in public health.

3. A woman assistant in the person of a well-trained public health nurse shall be assigned to the Bureau of Industrial Hygiene for at least six months during the year, or for nine or even twelve months if the work demands.

4. The factory inspector shall carry out a constructive program, during the summer months at least, in preventive dentistry—this to be done by the use of two or more mouth hygienists between school terms. Where deemed advisable these mouth hygienists can arrange a corrective program through the local dental society.

5. In addition to his other regular duties, the factory inspector and the nurse shall be held responsible for the physical inspection, follow-up work in the homes, and for health educational work, such as moving pictures, lectures, and the distribution of literature, also vaccinations and immunizations in all counties not having a full-time health department. The work is to be done in co-operation with the part-time health officer and factory physician.

6. In addition to reports required by Chapter 163, Laws of 1914, the state factory inspector shall make a monthly report of all his public health activities direct to the state health officer upon a form furnished him for the purpose. The public health nurse shall make monthly reports to the supervisor of public health nursing as the other public health nurses in the state. Her report is to be approved and signed by the state factory inspector. The mouth hygienists' reports will be made to the supervisor of mouth hygiene, State Board of Health, said reports to be approved and signed by the factory inspector. The inspector shall do his own work and in addition direct the work of the nurse and mouth hygienists.

Requests by the factory inspector for specialized services in work with crippled children, in tuberculosis, nutrition, and feeble-minded, and other problems of a public health nature will receive immediate attention and everything possible done to promptly supply the need. Institutions and agencies doing these different phases of work will co-operate in a splendid way to bring about the best results.

This program will be put into effect July 1st when a public health nurse and oral hygienist will be assigned to the factory inspector.

It is the sense of the Board that no election of factory inspector should be made until the October meeting of the Board, and that the present incumbent, Dr. R. S. Curry, continue to serve until the matter is finally disposed of by the Board at that time.

Dr. E. W. Holmes, who was graduated by Tulane University in June, and was licensed by the State Board of Health at its recent session, is now located in Winona, Mississippi. He is associated with his brother, Dr. T. W. Holmes, who is in charge of the Winona Infirmary.

The Vicksburg Sanitarium held its staff meeting on July 11, 1928. Its scientific program was:

1. Rupture of Right Ovary with Intra-abdominal Hemorrhage, Dr. G. M. Street.

2. Ulcer of the Duodenum with Chronic Perforation, Dr. A. Street.

3. Fracture of the Os Calcis, with X-ray Studies, Dr. J. A. K. Birchett, Jr.

4. Aneurism, Probably of the Arch of the Aorta, Dr. L. J. Clark.

5. Tuberculosis of the Maxillary Sinus, Dr. E. H. Jones.

On July 12 the Homochitto Valley Medical Society held its regular quarterly meeting in Natchez. In the absence of the president the chair

Dr. John H. Musser, professor of medicine at Tulane University, presented a paper on the subject of Euphyllin in the Treatment of Heart Disease.

Dr. J. S. Ullman reported a case of varicose veins treated by injections of sodium salicylate.

Another interesting feature of the meeting was a round table discussion of therapeutic measures.

The next regular meeting of the Homochitto Valley Medical Society will be held in October at which time officers for the ensuing year will be elected.

Dr. L. H. Lamkin of Natchez is confined to his bed on account of an attack of erysipelas.

Dr. and Mrs. Philip Beekman of Natchez are spending their vacation in Atlantic City.

The regular meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held in Vicksburg on July 10, at which time the entire program was devoted to the subject of Tuberculosis.

The moving picture film, *The Doctor Decides*, was shown. This film was prepared by the American Child Health Organization and stresses the importance and methods of early diagnosis in tuberculosis.

The following physicians have recently settled in Vicksburg: Dr. J. M. Feder at the Vicksburg Infirmary; Dr. Hugh H. Johnston at the Vicksburg Sanitarium; Drs. Frank E. Werkheiser, Rex Goodman and H. C. Dillworth at the Mississippi State Charity Hospital.

The following compose the staff of the South Mississippi Charity Hospital, Laurel, Mississippi: Dr. R. H. Foster, superintendent; Dr. C. J. Lewis, assistant superintendent; Drs. J. R. Johnson and E. S. Roberts, house physicians.

The following medical students are here attending the clinics during the summer: J. W. Vaughn, Emory University; Hubert Flurry, University of Pennsylvania, and W. B. Hickman, Tulane University.

The correspondence given below shows again, without need of any further comment, the harm that the negro quack, Redmon, is doing. This seems to be another instance of the willingness of our courts to consider technicalities in the interpretation of the law rather than consider the public welfare. During the months that the State Board of Health has been restrained from putting a stop to the activities of this charlatan, many a poor sufferer from tuberculosis, cancer, or other equally serious conditions is wasting valuable time. It is a ques-

tion, when we consider the dilatory methods of the courts in questions of public health and public welfare, whether the harm done by the loss of time should not be placed on the shoulders of the courts rather than on the shoulders of the quack.

Franklinton, La.
June 18, 1928.

Dr. F. J. Underwood,
State Health Officer,
Jackson, Mississippi.

Dear Doctor Underwood:

Has your office any information on the matter of Henry Redmond, negro, from Bogalusa, La., practicing medicine in Mississippi without license?

It seems that this negro makes medicine, and sells it in Mississippi, a few miles off in the country from the line of Louisiana. We thought he practiced also in Bogalusa, but the police say they can find no instance of such practice here. I understand he is doing a "land office" business, buying property in Bogalusa and seems to be prosperous. It is said whites and blacks go to him for many miles and it is said that there are instances of long waits for your turn to get a consultation and some of the miraculous medicine.

If you have any information on this matter to impart to us we will gladly receive it for consideration at our medical society. Our committee presented names of supposed patients to the police, but they say he does not treat here but requires all to go to his rendezvous in Mississippi.

Thanking you for any information you can let me have on this matter, I remain, with best wishes,

Fraternally yours,
JOHN SCHREIBER, Secretary,
Washington Parish Medical Society.

Dr. John Schreiber, Secretary, Jackson, Miss.
Washington Parish Medical Society, Franklinton, La.
June 19, 1928.

Dear Doctor Schreiber:

The negro Redmond was tried before Chancellor Dale last October and perpetually enjoined from dispensing his concoctions. Messrs. Sharp and Cassidy, representing the Attorney General's office, worked up the case and tried it with the results mentioned above.

Later, a member of the Supreme Court of Mississippi, Judge Ethridge, modified the injunction, which in effect permitted the negro to resume his lucrative practice. The negro has appealed his case to the Supreme Court. I sincerely hope that the case will receive the attention of said Court at an early date and that when the case is tried before the Supreme Court, the result will not justify Mississippi in being the laughing stock of Louisiana, Alabama, and Tennessee any longer in matters of this kind.

When the case is tried, I shall send you a copy of the decision which you may present to your medical society.

Very truly yours,

FELIX J. UNDERWOOD.

Hon. Rush H. Knox, Jackson, Miss.
Attorney General, June 19, 1928.
Jackson, Miss.

Dear General Knox:

I am enclosing copy of letter from Dr. Schreiber, Secretary, of the Washington Parish Medical Society, Franklinton, La., which is self-explanatory.

You see this negro knows better than to attempt to practice in Louisiana; he has his Louisiana patients come over into Mississippi where he prescribes for them and where he is, so far, immune to the law.

Would it not be possible to get his case before the Supreme Court at an early date in order to get him out of Mississippi? I know that your office has been doing everything possible and that but for that fact that Judge Ethridge modified the injunction, he would not now be in Mississippi violating our laws and obtaining money under false pretenses daily.

It will soon be a year since Chancellor Dale tried this negro quack. Right thinking people in this state, and there are many of them now, in the territory in which this negro operates think that it is an outrage to longer permit the state to place a premium on ignorance and superstition.

He is selling his concoctions in Philadelphia and a number of other places through other negroes and numerous complaints are coming in daily from places where Redmond is operating through other people.

Thanking you for your continued interest in the case, I am, with best wishes,

Very truly yours,

FELIX J. UNDERWOOD.

Judge George H. Ethridge, Jackson, Miss.
Jackson, Miss. June 19, 1928.

Dear Judge Ethridge:

I am enclosing copy of letter received from Dr. John Schreiber, Secretary of the Washington Parish Medical Society, Franklinton, La., which is self-explanatory. I have received numerous letters of this kind from Louisiana and Alabama, to say nothing of those received from different parts of Mississippi.

I am not inclined to blame you for undoing the good work of Chancellor Dale because, knowing you as I do, I have absolute confidence in your integrity and do not believe that you would do anything that is not in accordance with the law, but I do think it was most unfortunate and I hope that the case will come before the Supreme Court at an early date and that the facts presented by

the Attorney General's Office and the State Board of Health from the record may justify the Court in sustaining Chancellor Dale's decision.

Again, I wish to express my confidence in you and to again say that I am not disposed to blame you, but simply feel that it was most unfortunate that this negro should be permitted to continue his practice, not only himself, but through at least a dozen other negroes in different parts of the state.

Very truly yours,

FELIX J. UNDERWOOD.

PATIENTS IN MISSISSIPPI STATE HOSPITALS FOR MENTAL DISEASE: 1927.

The Department of Commerce makes the following announcement concerning results of the 1927 census of mental patients in the two state hospitals of Mississippi:

These hospitals had a total of 1,056 first admissions during the year 1927, as compared with 1,008 in 1926, and 922 in 1922.

These first admissions represent patients received during the year, who had not previously been under treatment in any hospital for mental disease. Such newly admitted patients afford the best available measure of the number of new cases of mental disease which are brought under hospital treatment during a given year.

The increase in the number of first admissions to state hospitals in Mississippi between 1922 and 1927 was relatively greater than the growth in the State's population during the same period, as shown by the fact that the first admissions in 1927 numbered 59 per 100,000 of population as compared with 56.3 in 1926, and 51.5 in 1922.

The extent to which provision has been made for state treatment of mental patients is indicated by the number of patients present in the state hospitals on a given date. In Mississippi, the number of mental patients under treatment in the state hospitals has increased steadily from 1,978 on Jan. 1, 1910, to 2,990 on Jan. 1, 1928; and the ratio of such patients per 100,000 of general population increased from 110.1 on Jan. 1, 1910, to 167 on Jan. 1, 1928.

Of the first admissions in Mississippi during the year 1927, 633 were males, and 423 were females; and of the patients present on Jan. 1, 1928, 1,393 were males, and 1,597 were females.

These figures are based on reports furnished by the institutions. The figures for 1927 and 1928 are preliminary and subject to correction.

1928	.....	.....	2,990	167.0
1927	.....	1,056	59.0	2,854
1926	.....	1,008	56.3	2,727
1923	.....	.....	.....	2,537
1923	.....	922	51.5	2,510
1910	.....	.....	.....	1,978
				110.1

BOOK REVIEWS

Gynecology: By William P. Graves, A. B., M. D. Fourth edition, thoroughly revised. Philadelphia and London, W. B. Saunders Co. 1928. pp. 1016, with 562 illustrations, 128 in colors.

The amazingly rapid progress of the specialty of gynecology is in no way better illustrated than by the fact that within five years of the publication of the last edition of Graves' *Gynecology*, a new revision is necessary, or rather a new book, for this edition is considerably more than a revision. It is typical of the lines along which this specialty is advancing that whereas the section dealing with operative gynecology is changed only in comparatively unimportant details, the sections dealing with pelvic pathology show very extensive changes, and the section dealing with physiology is practically new. This corroborates the opinion of many observers, that surgery, in matters of technique and performance, has almost reached its inevitable limits, whereas, thanks to the patient work of tireless students in the fields of physiology, pathology and biochemistry, the conception of medical science is still in a state of flux, and even more radical changes are to be expected than have already occurred.

The *Gynecology* is a monumental reference work, more complete in every respect than any similar text of which the reviewer has knowledge. For such an encyclopedia of gynecology there is, of course, a very real need. On the other hand, the remarkable completeness of detail in a way does the book a disservice, for in the very multiplicity of facts there is sometimes a loss of perspective. Then, as is unfortunately more and more true of medical works, the mere size of the volume deters the reader. More than eighty pages have been added to the text, and the illustrations—which, by the way, are of a uniform standard of excellence—have also been added to, so that the bulk of the work has been very materially increased. Such a complaint is, of course, a trivial one, and of small import in the face of the general excellence of the presentation, but one does wish that there could be some limit to the increasing size and weight of medical texts.

One cannot fail to be impressed with the tremendous labor which this revision has evidently involved. The mere review of the literature, which is carried up to the date of publication, must have been an enormous task in itself, quite aside from the literary labor necessary to produce a book of this extent. To mention specific changes, the whole section on the physiology of the pelvic organs has been rewritten, and new material has been added relative to the physiology of the vagina and the fallopian tubes. The section on en-

docrinology is practically new and includes all of the recent valuable work of the Continental investigators, as well as of Robert Frank, Emil Novak and their co-workers. The same review of this particular subject is especially refreshing in the midst of the confused and exaggerated claims which the very mention of the glands of internal secretion so often produces. Endocervicitis is presented in a new and more complete way, and the reviewer has nowhere seen a clearer presentation of the confused and overlapping subjects of kraurosis and leukoplakia of the vulva. The classifications of vulvitis, vaginitis and endometritis have been improved, but one notes, with regret, that oophoritis is still a vague and highly speculative subject. The sections on gynecologic tumors have been completely rewritten, and descriptions of many new and rare tumors have been added. It is unfortunate that these latter growths cannot be accorded a less striking presentation—possibly by some mechanical arrangement of type—so that the greater importance of the more common tumors might be emphasized. A new classification of ovarian tumors is advanced, based on new theories of histogenesis, which is decidedly clearer and more logical than the old Pfannenstiel grouping, though, as the author himself frankly acknowledges, it is still far from satisfactory. The section on endometriosis, which is entirely new, is the most comprehensive and valuable critique of this subject which the reviewer has seen, and the bibliography is very complete. The whole section on sterility has been rewritten, and the etiology and treatment of this increasingly important subject have been brought absolutely up to date. In the line of therapy, all of the new methods of treatment are included: protein therapy, diathermy, irradiation for amenorrhea and sterility, etc., and the employment of radium in carcinoma of the cervix according to the ideas of the French School is discussed at considerable length.

The inclusion in the text of collective statistical studies of certain clinical entities is a particularly good departure, for it has long been the reviewer's opinion that this method is the most accurate way, at least from the clinical standpoint, to appraise any given disease and its treatment. Also noteworthy is the fairness of the author's presentation. Naturally the entire subject matter is colored by his own vast clinical experience, but he is careful always, where matters of principle are involved, to quote the opinion and practice of others also.

A very striking feature of this new edition is the detailed consideration of cancer, particularly from the standpoints of etiology and prophylaxis. Whether the author is correct in assigning

heredity the importance which he apparently is inclined to give to it is still a matter of debate. But certainly there can be no question as to the correctness of his emphasis on chronic irritation as a chief causative factor, and his correlation of such various predisposing causes as lesions of the vulva and vagina, endocervitis, uncorrected childbirth injuries, gynatresia and uterine fibroids with the later occurrence of malignancy, is entirely to be commended.

The arrangement of the subject matter is for the most part quite logical, but the reviewer wonders, as he has wondered in reading former editions, what possible basis there is for the chapter entitled "Special gynecologic diseases." The place of ectopic pregnancy is always a disputed one, but amenorrhea, menorrhagia, sterility, even dysmenorrhea in most of its manifestations are symptoms, not diseases, as the author himself is careful to emphasize, and for that reason it is misleading to deal with them under the above heading. Would not a section entitled "Disorders of function" be more logical? Moreover, "Radium in the treatment of non-malignant gynecologic disease" is a therapeutic consideration, and as such most emphatically does not belong among "Special gynecologic diseases."

On the whole, however, this book is deserving only of the highest praise. It is a complete, impartial, scholarly presentation of one of the most important divisions of medical science, and it cannot fail to add fresh laurels to the already considerable fame of its clinician-author.

C. Jeff Miller, M. D.

A Manual of Otology: By Gorham Bacon, M. D., F. A. C. S., and Truman Lawrence Saunders, M. D., A. B., F. A. C. S. Eighth edition.

Philadelphia, Lea & Febiger. 1928. pp. 576.

It has been said that it is easier to write a big text book than a small one, the author of the small text book having carefully to condense material while the writer of the large book is at liberty to expand and reiterate. This book being of 560 pages falls in the class of small text books. It was intended by the author that the book be a compact book of reference for the busy general practitioner and a text book for students. The subject matter is condensed, readable and for the size of the book quite comprehensive. Technique of operations on the nose and throat has been omitted in this edition although the discussion of diseases of the nose and throat in their relation to ear troubles is of course, continued.

H. Kearney, M. D.

Brain and Mind or the Nervous System of Man:

By R. J. A. Berry, M. D., F. D. C. S., F. R. S. Edin., New York, Macmillan Company. 1928. pp. 608.

This volume represents the indefatigable and painstaking application of the author. It is a compilation of embryology, anatomy, physiology, biology and neuro-psychiatry. Much of this is given to neuro-anatomy with explanatory data of the brain and spinal cord. To a large extent it is evolutionary in description.

Chapters 29 and 30 deal with problems most instructive. Chapter 35 elaborates on the significance of the nervous system in an explanatory manner which is seldom met with in writings of this type. The chapter on Sleep, Dreams and Emotions is well written and shorn of all pseudo interpretations as to their happenings. The paragraph therein concerning fatigue and sleep is well worth reading.

The remaining chapters with illustrative clinical cases deal with amentia, a matter of vital interest to our civilization and is markedly eugenic in character.

The author is a neuro-psychiatrist of note and has placed within a volume intelligently written the results of his personal activities, investigation and research as only one who has closely contacted the subject matter therein dealt with.

Walter J. Otis, M. D.

Strabismus: Its Etiology and Treatment: By Oscar Wilkinson, A. M., M. D., D. Sc. St. Louis, C. V. Mosby Co. 1927. pp. 240.

Ophthalmology is indebted to the author for an interesting and instructive volume about a subject which needs much intelligently understanding by the oculist, the general physician, and the public. Many popular conceptions on crossed eyes are hopelessly incorrect and would be humorous if they did not result in a deformity which handicaps a human being through life and always represents a souvenir of someone's ignorance.

The reader is given an unusual versatility of opinion, no previous volume having more extensively quoted the literature on this subject. The author's individual ideas and conceptions however are very well expressed and represent the mature judgment of the experienced clinician.

The first section gives an entertaining historical review, showing that many of our current and supposedly new ideas about strabismus are in reality, a hundred or more years old. They have been re-born every few years and most of the deliveries have been dry labors. Thus, the conceptions of correcting squint by glasses, by

operation, and of improving sight in certain cases by exercise, are at least a hundred and fifty years old—that we know of.

The various theories of strabismus with their proponents and opponents are elaborately discussed and cussed. The muscular theory assumes that strabismus is essentially due to a faulty mechanical alignment of one or more parts of the orbital contents, while the accommodative theory regards the equalization of accommodation and convergence as the vital factor. The fusion theory assumes the inability of the central visual motor mechanism to properly direct the eyes together as the essential cause, while the nervous theory maintains that our nervous vitality is the deciding factor in keeping the eyes in their normal direction. In reality, all of these theories are right; and all are wrong. No single cause is alone responsible for all crossed eyes. Three variable factors, individually or together, are involved in all strabismus. They are,—the eyeball, the mechanical alignment of the orbital contents, and the motor visual brain function. If these do not work properly and together, keeping the eyes straight becomes more and more difficult. Finally a point is reached when the proper fixation of both eyes becomes impossible; and, in, or out usually, goes one eye or the other. This usually occurs during excessive fatigue, or its equivalent, lowered bodily vitality.

The anatomy of the orbit and ocular muscles as well as their physiology, is taken up at some length, also the types and measurements of strabismus. These sections are interestingly written but do not contain a great deal that is really new, largely because little worth while has recently been advanced on these subjects.

The examination of the patient with strabismus is then described, a chapter which will especially appeal to those who have not worked out the examination technic best adapted to their individual needs. Each of us is inclined to think that our way of doing things is best—and for us it often is.

About eventy-five per cent of persons with squinting eyes can be practically cured of their deformity without operation if taken in charge early enough by an ophthalmologist who really understand and is interested in this subject—incidentally quite a few are apparently not. The most difficult problem is the constant adaptation of treatment to the patient's individual and current needs. As the author mentions, orthoptic exercises, which are a valuable adjunct to refraction, should not be continued after they have ceased to be of practical benefit. Only one case in about ten obtains permanent benefit from ocular exercises because the doctor, the patient and

the parent will not continue their use in a regular, systematic and intelligent way.

All of the accepted methods of operative treatment are decribed in detail, in fact it is possible that the author has discussed too many rather than too few operations. It is so easy for the younger ophthalmologist to get lost in a mass of different operations and make a mistake in the practical solution of the individual problem before him. Dr. Wilkinson has perfected the operation of resection and has invented several ingenious instruments which make it the simplest and most accurate of the strengthening types of operation.

The volume closes with photographs and descriptions of illustrated cases and a carefully illustrated index.

The author in this very practical volume insists justly and often that many of the failures in the non-operative treatment of strabismus are due to negligence on the part of the parents or the oculist. He also urges the use of orthoptic exercises after operation, an important point which is not usually seen in print. His statement that tenotomy should never be done on children under twelve years of age seems rather dogmatic, notwithstanding that this operation has been greatly abused in by-gone years. Anyone who is really interested in this subject will do well to read Dr. Wilkinson's book; and then read it again.

Charles A. Bahn, M. D.

The Diagnosis and Treatment of Diseases of the Stomach: By Martin E. Rehfuss, M. D. Philadelphia, W. B. Saunders Company. 1927. pp. 1219.

This is a very excellent volume, for several reasons:

The subject matter is interesting and attractively presented.

A special chapter is devoted to "The study of food digestion in the stomach." This chapter covers the action of a large number of food-stuffs in the stomach, particularly with relation to their effect in stimulating gastric secretion and also the time required for their evacuation from the stomach. It is but a short step to apply the knowledge, so gained, to disease processes and this Dr. Rehfuss does when discussing various gastric conditions.

Many chapters are devoted to the relationship existing between the stomach and other organs, particularly the duodenum, gall-bladder, pancreas, colon and appendix. This, in the opinion of the reviewer, is a very excellent plan as gastric func-

tions are so intimately associated with the other viscera, particularly those supplied by the vago-sympathetic nervous system.

While about everything which can have a bearing upon gastric function has been discussed in this work, the reviewer feels that a short chapter devoted to a discussion of that common ailment "Indigestion" and its common causes, would have fitted in nicely.

This volume is most heartily recommended for its completeness and the excellent presentation of the subject matter.

J. Holmes Smith, Jr.

Nurses, Patients and Pocketbooks: Report of a Study of the Economics of Nursing Conducted by the Committee on the Grading of Nursery Schools. By May Ayres Burgess, Director. New York, N. Y. 1928. pp. 618.

Nurses, Patients, and Pocketbooks is a report on more than a year's nation-wide study of the supply and demand in nursing service conducted by the Grading Committee of Nursing Schools.

The Grading Committee, having been created by seven national organizations, felt that they could not set any standard of education until they thoroughly understood conditions. Thus a system of questionnaires sent to physicians, nurses, patients, public health supervisors, institutional supervisors and registrars have been used in compiling statistics on the economic situation. Miss Burgess has endeavored to present these facts not only in the form of percentages and diagrams but by the actual words used by many individuals.

The outstanding fact presented is that nursing training schools are the only schools conducted on a truly economic basis. They exist because the hospital needs skillful, docile labor at the lowest possible cost. There are a few exceptions in the University Training Schools, but these are rare. As the nursing service in most hospitals is inadequate the patient must, if he needs special attention, employ a private nurse. No effort is made to give the public the benefit of the trained worker. Even when professionals are employed on floor duty, they often supplement the student rather than taking charge of her training. Again no special preparation is made for the branch of service a nurse expects to do after graduation, and because many hospitals need students they admit girls who although they may do fairly well under strict supervision are not desirable after graduation. Fifty-four per cent of the graduate nurses do private duty, 23 per cent institutional work, 19 per cent Public Health, and 4 per cent other branches.

That there is no shortage of nurses is shown by the fact that many parts of the country report serious conditions of unemployment. There are more than two nurses to every doctor now, and it was shown (by a series of computations) that unless something is done, in another thirty years there will be ten to one. Will the public use this many nurses?

Of the different branches of services, the private duty nurses were the most discontented. There is evidence to show that they are the poorest paid, have the longest hours, have less recreation, have less social life, have more sickness, and receive the least sympathy and understanding.

Some patients and many doctors complained of the expense the nurse carried. About one out of every three, reported on by physicians, found it harder to pay the nurse than to get a good one. Many patients expressed their interests in hourly or group nursing which would be less expensive for the patient, and necessitate shorter hours for the nurse than under the present system.

Patients were more critical of nurses than physicians, but it was shown that the majority of physicians and patients prefer trained nurses; and by far the largest per cent say they would employ the same nurse again. Some serious criticisms were made, most of which were that the nurses lack the proper background of training and education; some nurses were very thoughtless of the family and existing conditions. Statistics show that half of the graduate nurses have had four years of high school, and that 15 per cent have had one year or more of college. The remaining 35 per cent have had less than four years of high school.

The majority of physicians lay stress on skill in general nursing care and making the patient comfortable, first; then skill in observing and reporting symptoms; care and following medical orders; and last, but not least, good breeding and attractive personality.

What the majority of nurses want are: Reasonable hours, adequate income, conservative leadership and opportunity for growth.

No efforts were made to solve the difficulties which presented themselves, as the Grading Committee considers themselves a judicive rather than a legislative body.

My own reaction to the book was general depression, but as Miss Burgess brings out, nurses love nursing. Those that leave the profession often come back, and those that do not come back often speak of it as of the happiest periods of their lives. Although constructive criticism is good, I truly believe that no profession, national

organization, committee, or people could stand the inspection of a critical person without presenting some startling facts. I have been associated with college girls and student nurses. They are not strikingly different. Nurses are under stricter discipline and show more reaction when they are free. Less attention is paid to their recreation, and they probably need more than any other class of people. I know quite a few teachers intimately and I find that they are often mechanical and without definite vision. There will always be a few men in the medical profession who do not realize the influence of their actions. Yet! No better substitute has been found for the present-day college, and no one would abolish the teaching profession, or loose faith in one of the highest professions, a man can choose, because a few human beings fall short of the ideal. Neither does the nursing profession need an excuse for its existence.

Olive E. Wakefield.

Studies in the Psychology of Sex: By Havelock Ellis. Vol. 7. Philadelphia, F. A. Davis Co. 1928. pp. 539.

This supplemental volume to a colossal work is a fitting close to a study that is destined to endure for centuries. The more one reads the author, the more one is impressed with the great learning of the scholar. His profound knowledge of the subject, his skill in handling his material, his extensive reading are all imprinted on this volume as in the others and are most essential information to one interested in this study.

I. L. Robbins, M. D.

Clinical Aspects of the Electrocardiogram: By Harold E. B. Pardee, M. D. New York, Paul B. Hoeber, Inc. 1928. pp. 242.

This is a second revised edition of a book that has definitely established itself as a standard text. For the general practitioner it is an excellent reference. The information presented is brief, clear and concise. Few important changes were made in this volume, but the advances made in electrocardiography and the several new machines in use and the newer terminology employed are given adequate attention.

I. L. Robbins, M. D.

Mental Health of the Child: By Douglas Armour Thom, M. D. Cambridge, Harvard University Press. 1928. pp. 46.

An essay of sufficient merit to warrant publishing in one of the important series of Harvard health talks.

J. H. MUSSER, M. D.

Anthelmintics and Their Uses: By R. N. Chopra and Asa C. Chandler. Baltimore, The Williams & Wilkins Company. 1928. pp. 291.

This is a comprehensive work on helminthology. It not only describes minutely the parasites, but analyzes the specific drugs, giving dosage, manner and administration, toxicology and contraindications. It is complete, in that it describes parasitic infestations of animals and the treatment, as well as of man. It is, therefore, valuable to the veterinarian and to the physician alike. It fills a long felt need for a detailed account of anthelmintics and their uses.

H. W. BUTLER, M. D.

Mosquito Surveys: By Malcolm E. MacGregor. New York, William Wood & Co. 1928. pp. 293.

This book has been prepared for the use of the field workers engaged in combatting malaria and mosquitoes. It deals first with the anatomy of the mosquito in general, and then discusses in detail the differentiation of the more important mosquitoes capable of bearing disease. There is a last section on laboratory and field technique, which recounts methods of mounting mosquitoes, a section on anatomical technique, and on the breeding and the rearing of mosquitoes, as well as methods of rearing them in captivity. Some ten pages are devoted to field technique. The book can be heartily recommended for those engaged in mosquito campaigns.

J. H. MUSSER, M. D.

PUBLICATIONS RECEIVED.

Paul B. Hoeber, New York: René Theophile Hyacinthe Laennec, a memoir, by Gerald B. Webb, M. D.

D. Appleton and Company, New York and London: The Nose, Throat and Ear, by John Barnhill, M. D., F. A. C. S. The Eye, by C. W. Rutherford, M. D., F. A. C. S.

J. B. Lippincott Company, Philadelphia and London: International Clinics, Volume II, June, 1928. The Heart in Modern Practice, by William Duncan Reid, A. B., M. D.

Longman's, Green and Co., Ltd., London and New York: Fever, Heat Regulation, Climate and the Thyroid Adrenal Apparatus, by W. Cramer, Ph. D., D. Sc., M. R. C. S.

Agricultural Research Institute, Pusa: Memoirs of the Department of Agriculture in India, by Major R. F. Stirling; Memoirs of the Department of Agriculture in India, by J. T. Edwards, D. Sc.

Calcium Therapy, by John Aulde, M. D., Philadelphia.

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THE SUGAR-FED CHILD.*

SEALE HARRIS, M. D.

BIRMINGHAM, ALA.

Sugar products are the cheapest, most abundant and most palatable forms of food. They have their uses in that they are readily soluble, and by metabolic processes in the human body, are converted into heat and energy. The excessive use of sugar, however, particularly in children, is the most serious dietetic error of the present day. Statistics shows that the per capita consumption of sugar in the United States has increased more than 500 per cent in the last half century, from 23 pounds per capita in 1870 to 120 pounds in 1926. In other words, every man, woman and child in the United States eats on an average one-third pound, about a tea cup full, of sugar a day. If this change in our dietary habits is a direct, or indirect, cause of disease, it is high time that the medical profession consider the question seriously; and give the laity the facts, because it is only through an enlightened public opinion that the perverted appetite of a nation can be corrected.

Concomitant with the unprecedented consumption of sugar, cane syrup and corn syrup has been an enormous increase in the use of white flour, white meal, white rice, commercial breakfast foods, white potatoes, margarin butter, meats, and coffee, which are devoid of vitamins, while

the family garden, orchard, dairy and poultry yard that were formerly a part of every farm, and which supplied the protective foods required for perfect nutrition, are rapidly passing. Sugar saturated, vitamin starving America presents a problem which may be approached through a study of the sugar-fed child, with the idea that an ounce of prevention in the infant is worth more than the proverbial pound of cure in the adult.

THE SUGAR-FED CHILD.

To the physician, who knows something of the recent advances in the science of nutrition, and who studies cause and effect in treating his patients, the sugar-fed child is one of the saddest sights in the world. Such a physician knows that the petted and pampered child who indulges in the excessive use of sweets will not drink a sufficient amount of milk, or eat enough eggs, fruits and vegetables, to provide the needed fats, proteins, minerals and vitamins for perfect nutrition. He therefore knows that the sugar-fed infant often becomes rachitic, and is prone to colitis and other infections; and that if he survives the diseases of infancy he becomes the pale, weak undernourished child; or the fat, flabby, indolent and self-indulgent adolescent. Likewise, the thinking physician knows that his adult dyspeptic, diabetic, or obese patient with heart, kidney, or vascular complication, is often the grown up sugar-fed child.

*Read by invitation before the Mississippi State Medical Association, Meridian, Miss., May 9, 1928.

Verily, the child that is born in sugar-saturated America is "of few days and full

of trouble." Soon after his arrival in this "vale of tears" he is fed sugar by his fond parents, so that his taste becomes perverted during the first days of his existence. By the time he is one or two years old he is a confirmed sugar habitue, and demands that sugar be thick on his oatmeal and bread; and he will not drink milk unless it is thoroughly sweetened. He has syrup and cakes for breakfast, and sugar-saturated desserts for dinner and supper, like the rest of the family. He is fed candy and soft drinks between meals by kind friends of the family, until the life of the average child consists of eating and drinking one sweet after another. Of course some parents recognize the harmfulness of giving their children too much sweets, but with a grocery store and soft drink stand on every block, where the boys and girls of the community congregate, even if children are properly fed and carefully trained at home, they form the sugar habit in their early years.

"The man is but the grown-up child" and harmful eating habits formed in childhood become fixed in early manhood; and the average adult in America consumes about ten times more sugar than is needed for nutrition. This excess of a soluble carbohydrate ferments in the stomach and intestines, forming gas and acid products that not only are responsible for many functional digestive disturbances; but patients with ulcer of the stomach or duodenum, chronic gastritis, gall bladder infections and other abdominal diseases give a history of excessive indulgence in sweets too often for it to be a mere coincidence.

WHY IS THE EXCESSIVE USE OF SUGAR HARMFUL?

Sugar taken on an empty stomach is rapidly digested and absorbed and is capable of being converted into energy very quickly before fermentation can take place. Its best use, therefore, is between meals for athletes and laborers who need a rapidly assimilable carbohydrate. Sugar in that

way prevents fatigue, increases muscle strength and spares tissue metabolism.

When sugar in any form is taken with meals it remains for several hours in the stomach, thus favoring fermentation; and the greater the amount of sugar ingested the more active the fermentation process. Cane or beet sugar in solution is a favorite pabulum for the fermentative bacteria, which produce gas and irritating organic acids (lactic and butyric acids) in the stomach and intestines.

Unquestionably many of the digestive disturbances both in children and in adults result from the fermentation of sugar products in the gastro-intestinal tract. This is proved clinically by the fact that many adult patients who complain of gastric hyperacidity, flatulency, constipation, or diarrhea, give a history of the ingestion of excessive quantities of sweets; and in many such patients all that is needed to relieve the symptoms is to eliminate sugar products from their diet.

SUGAR IN INFANT FEEDING.

One of the harmful results from the consumption of too much sugar products is that they satiate and destroy the appetite for other more wholesome food. Pediatricians have learned that the best and quickest method to restore appetite in the capricious, irritable, undernourished child is to eliminate sugar entirely from the diet; and they are realizing more and more the seriousness of the increasing consumption of sugar among children. Some pediatricians, however, are not entirely blameless in creating the craving for sweets in infants because of their tendency to use more cane sugar in modifying milk, particularly among poor children whose mothers cannot provide them with breast milk. The fact that cane sugar is cheap and always available, and that milk sugar is expensive and more difficult to obtain makes it easy for physicians to prescribe it as a milk modifier, without thinking of the dangers of forming the cane sugar habit in the child.

Since milk sugar is less sweet and milk modified with it tastes more nearly like whole milk, thus accustoming the child to use the most nearly perfect article of food that can be found for children, is sufficient reason to make milk sugar the most desirable soluble carbohydrate for infants; even if there is nothing in the claim that lactose ferments less readily than sucrose or sacchrose and that the end products derived from the fermentation of milk sugar are less harmful than those derived from cane sugar fermentative processes.

There is a growing tendency to use glucose (corn syrup) as a milk modifier instead of milk sugar. It would seem that the same objections which apply to cane sugar would also apply to Karo syrup as a milk modifier, though glucose is less sweet than sucrose. Milk sugar probably contains vitamin B, while white sugar and corn syrup have no vitamin content.

The use of corn syrup, or glucose derived from any other source in threatened or actual acidosis may be justifiable for a few days at a time, though pure honey, which consists largely of levulose and glucose and is a natural food, containing vitamin B, would seem to be the best source of carbohydrate for use when needed for combating acidosis in children. The possibility of manufactured glucose (corn syrup, etc.) containing impurities should also be considered in using it in infant feeding. There can be no doubt but that Dr. Harvey W. Wiley had just reasons for his strenuous objections to the use of glucose as an adulterant of candy and other foods.

Condensed milk and other proprietary milk products containing a large amount of cane sugar will fatten an infant, but clinical experience has shown that children fed on condensed milk are less resistant to infections than those fed on fresh cow's milk modified with milk sugar or maltose.

VITAMIN DEFICIENCY PREDISPOSES TO INFECTIONS.

Probably the harmfulness of eating an excess of sweets lies most in the fact that

the sugar-fed child, or the adult sugar habitue, lives on a diet that is deficient in vitamins that protect against various infections. He lives largely on white bread, white potatoes, white rice, white sugar products, lean meats and coffee or tea. The child or the man who consumes a great deal of sugar rarely eats enough vegetables, fruits, or milk products that are rich in vitamins and which contain the minerals needed for perfect nutrition. In other words, he lives on what has been called "devitalized" foods, on which laboratory animals will starve or develop varied infections.

The observations and experiments of McCarrison seem to offer an explanation of why the sugar-fed child is more susceptible to many infections that one who lives on a well balanced diet. It is but just to say, however, that McCarrison's investigations seem to prove what Deeks has believed for a quarter of a century: that lowered resistance from an unbalanced diet predisposes to many infections.

McCarrison, a British Army Surgeon, stationed in a remote region of the Himalayas, was impressed by the rugged health and longevity of the inhabitants whom he treated, though they lived under most unsanitary conditions. He said: "During the period of my association with these people I never saw a case of asthenic dyspepsia, of gastric or duodenal ulcer, or appendicitis, of mucous colitis, or of cancer, though my operating list averaged 400 major operations a year." In his investigations as to the cause of this remarkable freedom from abdominal diseases among the primitive Himalayans, he was convinced that the use of "natural foods—milk, eggs, grains, fruits and leafy vegetables"—protected them against infection.

McCARRISON'S EXPERIMENTS.

McCarrison's classical experiments seem to prove that foods of low vitamin value and deficient in certain mineral substances, if used over long periods of time, predispose

to infections of the gastro-intestinal tract. He also called attention to the effect of an improper diet on endocrin function. He placed 36 healthy monkeys in two separate cages—12 were fed on natural foods, and 24 on foods excessive in carbohydrate content, deficient in vitamins, and lacking in various mineral substances. Of the first group all remained healthy and free from intestinal disease, while a majority of those fed on unbalanced and deficient diets developed diarrhoea and actual dysentery.

McCarrison is of the opinion that vitamin B and C serve to protect the gastro-intestinal tract from infections; and that the deleterious effects of a deficiency of these vitamins is enhanced when the food is improperly balanced, particularly when associated with an excess of carbohydrates. Again quoting from McCarrison: "Impairment of the protective resources of the gastro-intestinal mucosa against infecting agents may be due to hemorrhagic infiltration, to atrophy of the lymphoid cells, and to imperfect production of gastro-intestinal juices. This impairment not only results in infections of the mucous membrane itself, but also permits of the passage into the blood stream of micro-organisms from the bowels."

McCarrison showed, by illustrations of sections of various parts of the intestines, that all these changes occur in animals which have been fed on diets poor in vitamins and with an excess of carbohydrates. He claims that "diarrhea, dysentery, dyspepsia and gastric dilatation, gastric and duodenal ulcer, colitis, and failure of colonic function can be produced experimentally by means of feeding animals on faulty food." He does not claim that the faulty diet is the only cause of these gastro-intestinal conditions, but insists that pathogenic organisms are contributing factors. As proof that a faulty diet lowers resistance to infections, McCarrison fed healthy monkeys on *entameba histolytica* and failed to infect any of them; while those fed on a

deficient diet became readily infected when given the *entameba histolytica* organisms.

The pure carbohydrate diet that McCarrison fed to monkeys which resulted in various abdominal lesions due to infections by pathogenic microorganisms is only a little less restricted than the white bread, cereal, potato, sugar diet that is eaten by a large proportion of the people of the United States. It is a significant fact that more than 25 per cent of patients admitted to American hospitals suffer from medical and surgical diseases of the abdomen; and no doubt the excessive use of sugar is a factor of importance in predisposing to colitis, appendicitis, ulcers of the stomach and duodenum, and gall bladder, liver and pancreatic infections.

THE RELATION OF SUGAR TO MOUTH INFECTIONS.

The child with a "sweet tooth" grows up to become the toothless middle aged man or woman. No one who knows anything of the bacteriology of dental caries can doubt that the acid fermentation between the teeth and at the edges of the gums in the mouth of those who eat and drink sugar products will in time cause decayed teeth. No doubt pyorrhoea, Vincent's angina and other oral diseases are likewise more frequent in the sugar habitue, not only because of the local irritating effects from carbohydrate fermentation; but because the sugar saturated child or man lives on a diet which is deficient in the antiscorbutic vitamin, the predisposing cause of mouth infections.

Probably one of the reasons why the young people of this day have such poor teeth and have so many dental deformities is that the sugar-fed child's diet is not only deficient in vitamin D, but also in calcium and phosphorus, which are necessary for the ossification of the teeth and bones. McCollum in his experiments on animals produced all kinds of deformities of the teeth and bones by depriving them of vitamin D and calcium and phosphorus. In other words a diet such as the average sugar-fed child lives upon will produce rickets with various dental abnormalities.

McCollum has also demonstrated by feeding laboratory animals on deficient diets that the quality of the teeth of the offspring depends upon the mother's being properly nourished. The infant of the sugar-saturated human mother is therefore likely to be born with defective tooth buds, and the teeth which are developed from them are further impaired by a deficient diet in the growing child. We shall have to change the eating habits of mothers as well as of their children if we would save the teeth of the coming generation.

DEEKS' INDICTMENT OF SUGAR.

Deeks, formerly Chief Physician to Ancan Hospital on the Canal Zone, and who has been at the head of the Medical Department of the United Fruit Company for many years, has written many articles calling attention to the harmfulness of the excessive use of sugar products. In a recent monograph entitled, "Diet and Disease," Deeks gives a very plausible explanation of the deleterious effects of a high carbohydrate diet, with particular reference to the end results from the fermentation of cane sugar in the stomach and intestines. The following excerpt from his article is worthy of consideration by thinking physicians:

"When fermentation takes place through the action of bacteria, not only gasses are liberated, but other products are formed, some of which are toxic in character. The nature of the fermentative process can be very well illustrated by a consideration of the action of yeast upon grape-sugar. As the yeast cells grow and multiply, the sugar is converted into alcohol and carbon dioxide. Other organisms by means of their ferments produce lactic, butyric acids, etc., from sugars."

"As products of fermentation in the digestive tract, there is not only the formation of gas, but other products as well, which are toxic and irritating. The gasses formed are eliminated by eructations from the stomach, or through the rectum; or by

the lungs if absorbed into the circulation. The other products, however, resulting from the action of bacteria are soluble and absorbed into the circulation, whence they must be excreted. When these are very irritating or toxic, they produce lesions in tissues, not only where they are locally formed in the alimentary tract, but also while circulating in the blood and while they are being excreted by the kidneys, skin and lungs."

"Some toxic products are selective for tissues after the manner of the selectivity of toxic products of pathogenic bacteria. Certain authorities believe that some of the fermentative products are selective for fibrous connective and other specialized tissues, which they irritate. Irritation of tissue is frequently associated with pain and usually means lowered resistance to the invasion of bacteria, some of which are more pathogenic than others. As fibrous connective tissue is the supporting and binding element of the cells and is present in all tissues, any toxin affecting it is likely to produce symptoms which may be referred to any part of the body. When toxic products are absorbed into the circulation, their concentration and effects will be localized where there is the greatest physiological determination of blood or lowered resistance from any cause. In sufferers from rheumatism, the limb doing the most physiological work is usually most affected; and because of lowered resistance due to exposure, draft, or injury, symptoms are likely to follow in the location exposed. From similar causative factors morbid lesions vary in different individuals, influenced by age and idiosyncrasy. A child is more likely to suffer from bronchitis, irritable bladder, and endocarditis; a grown person from rheumatic pains, lumbago, arthritis, neuritis, pleurisy, headaches, etc. Personal idiosyncrasy, chemotaxis, and selective bacterial affinities generally determine the location of morbid processes. Influenza produces in different individuals symptoms referable to the nervous, diges-

tive, respiratory or excretory systems respectively; so will the products of fermentation."

"Of the different forms of carbohydrates, saccharose is considered the most fermentable. It undergoes no change in the stomach, as there is no ferment to handle it before it reaches the intestine, where it is acted upon by invertase, converting it into dextrose and levulose. When saccharose is taken with a full meal and the stomach is not emptied for several hours, owing to its proneness to be acted upon by fermentative bacteria, it becomes converted into irritating organic acids or toxic products, which are diffusible and absorbable. Because of their irritating properties, they stimulate locally over-secretion of the gastric glands, and hyperacidity results. If this action is continued over long periods of time, the gastric glands become exhausted from over-stimulation and anacidity results. The stomach functions are changed from that of a digestive organ to that of a fermentative food-containing sac. Saccharose is undoubtedly a very useful, quickly available, muscle food, if taken on an empty stomach or from three to four hours after a meal. If, however, it is taken with a bulky meal in artificially sweetened foods or drinks, fermentative bacteria may attack it and other carbohydrate foodstuffs before they can leave the stomach, and the effects are manifested in a variety of ways."

"It may be concluded, therefore, that any tissue or group of tissues in the body can be affected as a result of excess carbohydrate consumption of (1) its proneness to fermentation with the development of gaseous and toxic products, and (2) the deficiency of inorganic mineral salts and vitamins."

"Among the symptoms, symptom-complexes, and organic diseases which necessitate careful investigation in regard to the quantity and nature of the carbohydrate content ingested may be mentioned: Peri-

odical headaches including migraine, stomatitis, chronic pharyngitis, dental decay, spongy bleeding gums, focal infections, flatulent and acid dyspepsia, gastric ulcer, appendicitis, constipation, diarrhea, skin manifestations, such as furunculosis, eczema, acne, psoriasis, and alopecia of certain types; rheumatic phenomena, including neuritis, lumbago, torticollis, dysmenorrhea, arthritis, endocarditis, etc., other conditions of undetermined etiology may be mentioned, such as the development of gall, kidney and bladder calculi; arteriosclerosis, chronic interstitial nephritis, retino-choroiditis, ulcerative keratitis, etc."

"In children, the symptoms of those using excessive amounts of sweet and starchy food are characteristic. Fickle appetites, irritability, restlessness, lustreless hair, eneuresis, recurring bronchitis, hypertrophic tonsillitis, eczema, endocarditis, etc."

"It is not claimed that the excessive use of carbohydrates and the absorption of the fermentative products are the only factors involved in the above mentioned conditions. When people consume an excessive quantity of acid ash producing foods, like meats and the cereal derivatives, which are generally devoid of vitamins and deficient in inorganic salts, they are taking insufficient amounts of the foods belonging to the group of green vegetables and fresh fruits, which are the main supply of vitamins and alkaline inorganic salts. The inadequacy of vitamins, as well as an improper relationship or quantity of inorganic salts, undoubtedly plays important roles in the production of morbid conditions, either in predisposing to acute infections or organic tissue degenerations. However, the consumption of excessive amounts of the fermentable sweet and starchy foods in an important dietetic error that has not been sufficiently stressed. Though dietetic errors may be transgressed without impunity over certain limited periods of time, sooner or

later morbid processes insiduously ensue. Recurring headaches, premature tooth decay and digestive disturbances of all kinds should be warnings to an individual that the food he has been in the habit of ingesting is not being properly metabolized, and steps should be taken to balance his diet, restricting it to those quantities and combinations of foods or classes of foods which he can handle with impunity."

EDUCATION THE REMEDY.

Thomas Jefferson said: "The present generation is already lost. Let us educate the youth of the country," so he founded the University of Virginia, and he considered his contribution to education as his life's greatest work. The "father of democracy" was almost right; because it is difficult for adults who have been eating excessively of sugar products all their lives to realize that overweight which will surely shorten life, comes largely from the excess of sugar that is converted into fat. The adult, however, can be taught that sugar in any quantity need not be given to a child under one year of age; and that it should be eaten sparingly by children of all ages, because many of the ills of childhood have for their direct, or predisposing cause, the unnecessary sugar habit.

Progress is being made in teaching children the simple principles of nutrition both by text book instruction and by various nutritional clinics and studies in the public schools. For instance, it was found that 20 per cent of the school children of Massachusetts are undernourished. No doubt the children in other states fare no better, and often it is the child of wealthy parents who suffers most from faulty eating habits.

Educators are awakening to the fact that the undernourished child, in whom the excessive use of sugar is usually a contributing factor, accomplishes less than his well nourished deskmate, and that, as the child becomes better nourished, his class standing improves. It would be interest-

ing to compare the class standing of the sugar saturated children of a school with that of those who live on a well balanced diet.

The sugar-fed child is really a public health problem, as much so as the tuberculous infant, and health officers and welfare nurses should educate the public regarding the harmfulness of the excessive use of sweets, just as they have done in their campaigns against the communicable diseases of childhood. The parent-teachers' associations should see to it that school children are taught proper eating habits; and that they are not tempted every hour in the day to eat candy or drink soda water and other sweet drinks. The so-called cola drinks are particularly harmful, not only because they contain too much sugar, but their popularity depends upon the habit forming drug, caffeine, which it contains, that is particularly deleterious to the health of children. The health officer of one of the rural counties of Alabama informed me recently that 60 per cent of the children in one of the schools admitted the more or less regular use of the most popular of the cola drinks.

Likewise, the medical profession should study the harmful effects of the excessive consumption of sugar by person of all ages and physicians everywhere should do their part in teaching the public the facts that they know regarding diet and nutrition.

The most important problem in this land of sweets is to teach all people of all ages the dictum of McCollum's perfect nutritional day, *i. e.*, that each normal person from childhood to old age should drink from a pint to a quart of milk, and eat one raw fruit, one raw vegetable and two cooked leafy green vegetables each day. After that he may eat a reasonable amount of meat once a day, one or two slices of bread, preferably made of whole wheat flour or country-ground corn meal, with butter at each meal, and then a light dessert—ice cream, sherbet, or fruit at

one meal. When the known facts regarding nutrition are learned and practiced by all the people, in a few generations we shall have a race of super men and women in fortune-favored America.

DISCUSSION.

Dr. W. A. Dearman (Gulfport): I was unfortunate in getting in too late to hear the caption of Dr. Harris' paper, but his papers are always pregnant with ideas that are fundamental and worth while.

The health departments are directing attention to the teeth of the sugar-fed child who is inducted into the habit by its parents. I am afraid we do not take into consideration the value of the fundamentals that have been laid before us by dentists who understand this condition, nor do we put them into practical relationship with deficiency diseases.

In days past and gone, with reference to typhoid, the patient was instructed to live on chicken broth and nothing else. He came out a human wreck, emaciated, pale, and weak, and his chances for recovery very much embarrassed. We find now that since we have acquired ideas that have been worked out on a scientific basis, we can bring the patient through the entire course of typhoid from the incipency to the end of convalescence with practically the same weight that he had at the time he went to bed. That is a capital achievement in the treatment of this treacherous and most formidable condition that once was a scourge to our people of the United States. I have always been afraid to advise as to diet. I am afraid we find too many of our physicians who know very little of diet and the food values. I used a diet, long, long ago, figured out on the basis that there was starch in potatoes—that they contained 100 per cent starch—that it was in rice, and in turnip greens. That isn't true. Diabetics are big sugar eaters, starch eaters, and their lives are cut short. Too many doctors find patients who are too stout, and some under-nourished. Some of my patients were insulted when I said they were under-nourished. I practiced medicine before I had any scales in my office. We paid no attention to over and under weight, but now it is the most important thing, and it is a very easy matter for any doctor in a practical way to treat a profound diabetic in a small town or rural district by paying close attention at least to some of the fundamental principles of food values.

Dr. Seale Harris (closing): I appreciate Dr. Dearman's discussion. He always says something that you can carry home with you and put to profit. He is one of the most practical men I know of. He spoke of the question of bad teeth, particularly in children. The deficiency of teeth

is due very largely to a deficiency diet—bad teeth in infected mouths and gums. McCollum by dieting rats was able to produce almost any deformities in teeth, and of course various other deformities, by simply giving them a diet without vitamin D, contained in milk and eggs. That diet is also deficient in calcium and phosphorus. If you will study the diet of the average child—the infant—you will see that when the child is given a little sweet he won't drink enough milk—he won't eat vegetables, and many of them will not take eggs. Therefore, their diet is deficient in vitamin D, in calcium and phosphate, and it is almost as certain as the sun rises, that the child that is fed on a diet deficient in vitamin D, unless given a good deal of sunlight is going to have bad teeth, and he is going to have the rickets—he is going to have other troubles. McCullum says that 95 per cent have rickets before they are a year old. Don't misunderstand me—I don't mean to say that sugar is poisonous or is harmful in itself, but, on the contrary, it is an excellent form of good. Its principal use as a food lies not in eating between meals when the stomach is empty, when it is probably absorbed and immediately utilized, for instance, after a long, hard day, a few chocolates or a glass of soda water is helpful. It tides one over fatigue and it is really needed.

When much sugar is taken into the stomach with meals it stays there for hours and sometimes longer. It ferments and is productive of organic acids irritating to the stomach.

Doctors should be teachers. That is a thing that, personally, I am doing nine-tenths of my time, and I consider following the diagnosis the most important thing is to teach the patient how to live. Teach the patient the harmfulness of the excessive use of sweets. Nutrition is being taken up now by the public health authorities in a practical way, and it is doing a great deal of good.

PREVENTION AND MODIFICATION OF MEASLES BY MEASLES ANTIDIPOCOCUS GOAT SERUM.—Louis J. Halpern, Chicago, reports that fifty patients who gave a definite history of never having had measles were given measles antidiolococcus goat serum as a protection against measles. Five patients in this series died from three to ten days after receiving serum. Their deaths, however, were due to the illnesses for which they were originally admitted to the hospital; they did not develop measles nor did any serum sickness occur before death. Of the remaining forty-five patients in this series, twenty-eight patients, or 63 per cent, were successfully protected. While seventeen developed the disease, the majority of the latter experienced it in attenuated form. In spite of the fact that eight patients received serum after the fourth day of exposure, three of these, or 38 per cent, were protected. It is especially noteworthy that not a single complication occurred in any of the patients treated with serum who developed measles, nor was there any instance of a serum reaction in the entire series. He concludes that measles antidiolococcus serum apparently effected immunization against measles in a large percentage of cases.—J. A. M. A., April 17, 1928.

MALARIA THERAPY IN PARESIS.*

H. R. UNSWORTH, M. D.

NEW ORLEANS.

INTRODUCTION.

In February, 1927, this patient was inoculated intravenously with 5 cc. of tertian malaria. In June of the same year he reported back to work, since which time he has been re-engaged in his former occupation. He is married, has a wife and five children and, as far as we can see, is perfectly well.

Dr. Johns, I believe, is quite familiar with the patient with his acute outbreak and would possibly have something to say on the subject. As far as we know, psychically and neurologically, the man is as he was before his infection or acute clinical symptomatology.

We might have presented many cases demonstrating the benefit derived from malaria treatment in paresis, but chose this patient because his treatment antedates the others, which has the advantage of a longer period of observation of results. We have had the some success in the other cases.

Anticipating any therapy in diseases of the cerebro-spinal axis, it is most important to recall its anatomical structures, the units (of which you are familiar) being exquisitely sensitive to any trauma, be it physical, chemical, or psychic, and to disregard this bit of caution will invariably discredit any therapy undertaken, sometimes with unexpected fatalities.

There is little doubt that paresis, without going into any statistics, has increased within the past fifteen years. The distressing realization that its onset has become more rapid and that the average paretic is of an earlier age, suggests that the virulence of the organism is not alone to blame, or that there is any particular neurotrophic spirochete, but instead, the ex-

planation lies in my mind in too vigorous an attempt to combat the disease with modern intravenous therapies, disregarding superimposing a chemical enarteritis upon an already specific one. The attention of some authorities, such as White and Freeman at St. Elizabeth's Hospital in Washington, has been attracted to this possibility and will no doubt be more vigorously stated as their observations and research progress. Is it not reasonable to suppose, when one stops to consider the pathology in paresis, that such is a distinct factor and not an ultra scientific thought?

Paresis, briefly, is a meningo-encephalitis. The cortex of the cerebrum is composed of nerve cells, a network of nerve fibers and processes, neurologic tissues with a superimposed vascular membrane—the pia mater. In paresis, the outstanding pathological feature is the active formation of new vessels in the cortex with dilated capillaries and widened adventitial lymph spaces. These lymph spaces are filled with lymphocytic and plasma cells. Throughout the brain there is focal, diffuse and tract degeneration. The very nature of the pathology suggests the hopelessness of improvement with chemical therapy: it is merely another source of irritation and encourages proliferation changes.

It is with this impression that I feel we are justified in attempting any reasonable measures which appear to offer, if not a cure, a more pronounced improvement—that is, longer remissions. Malarial inoculation, however, is not to be recklessly or unintelligently used. Giving one disease to combat another is a serious matter, and on all occasions to be used only in selected cases with due consideration of the physical status of the individual. There are to my mind, certain definite contraindications, viz: cardio-vascular involvements, syphilitic hepatitis, pronounced renal involvements and general physical deterioration. And, is not reasonable to assume that too vigorous arsenical therapy

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hastens the pathologic process and therefore may be classed as a contra-indicative?

As early as 1887 the idea that the beneficial results from the induction of fever in certain cases appeared to give good results, was expressed by Wagner von Jauregge, chief of the Psychiatric Clinic at Vienna, in an article on "Influence of Febrile Diseases in Psychoses." He began by using Koch's old tuberculin in the treatment of general paresis, giving his patients increasing doses, subcutaneously, three times a week. He allowed eight to twelve elevations of temperature. This was followed by mercury. In comparing the treated paretics with an equal number of untreated ones, he found that the lives of those treated were longer and the remissions more pronounced and lasting. In cases of general paresis where tuberculin was contraindicated, Bedreska used typhoid vaccine. This he gave intravenously every other day and received very satisfactory results. He also used staphylococcus and streptococcus vaccines, but abandoned these because the remissions were of short duration. Donath of Vienna and Fisher of Prague treated cases by intramuscular injections of sodium nucleinate, but because of pain and suppuration, this had to be abandoned. Wagner von Jauregge concluded that his best results were obtained in cases where he used intercurrent febrile diseases. So, in 1917, he inoculated nine paretics with malaria (tertian). His original technique, as reported in the *Journal of Nervous and Mental Diseases*, Vol. 55, No. 5, May, 1922, was as follows: He injected from one to four c.c.'s of malarial blood obtained during an attack of fever and inoculated the patient subcutaneously. Occasionally he would rub malarial infected blood on scarifications in the upper arm as in small pox vaccinations. He sometimes used the specimens of blood between the paroxysms of fever and chills. Usually the malaria developed from six to thirty-six days after the inoculation. He allowed from eight to nine, sometimes as

many as twelve, elevations of temperature when the patient could stand it. Wagner Von Jauregge concluded that remissions occurred in 50 per cent of his cases, the patients actually returning to their former occupations. He observed, especially, that speech defects and epileptiform attacks, were benefited following malarial therapy. He also concluded that the sera of these patients were only negligibly influenced. Therefore, he regarded his serological findings as of diagnostic import but not of any prognostic significance. He also concluded that the earlier a paretic was inoculated the more pronounced the improvement.

O'Leary of Rochester, Minn., in an article in the *A. M. A. Journal* reported the results in one hundred cases treated with malaria between June, 1924, and February, 1926. He gave particular attention to the resistant parenchymatous forms of neurosyphilis, including incapacitating gastric crises, lightning pains in the legs and optic atrophy in tabes dorsalis. Fifty-seven of these 100 cases were cases of general paresis, 49 per cent of which were still in remission as measured by the economical status of the patient. Thirteen patients, presenting the syndrome of paresis, sine paresis or asymptomatic general paresis showed material improvement; in four the blood and spinal fluid were normal. The evidence supported the assertion that in the serologically negative cases of tabes with persistent lightning pains or gastric crises, malarial inoculation had been beneficial. In cases of optic therapy, benefit resulted. Four of nine treated cases showed the loss of vision had apparently been arrested. He reported a mortality of 5 per cent in those cases in which malaria was considered as a factor. Clinical results were more pronounced when the fever treatment was instituted early in the course of the disease. Striking results were, however, seen in cases where clinical signs of general paresis were present two, three or four years before inoculation. It is to be borne in mind that

the serological changes are not always paralleled by clinical improvement. This was confirmed by observation of cases in complete remission, some of which manifested no serological changes. On the other hand, cases with complete change in all the factors in the spinal fluid and blood might terminate in sudden death. O'Leary concluded that malarial therapy offered the most valuable method of treatment in paresis, and that his best results were obtained with anti-syphilitic treatment following a course of malaria.

Watson W. Aldridge, Jr., of St. Elizabeth's Hospital, Washington, D. C., was the first to undertake, in this country, the malarial treatment in general paresis. He inoculated the first patients in December, 1922. In a general survey of these cases, some of more than five years' standing, he found that remissions had occurred in 61 per cent of the cases, complete remissions running about 40 per cent or a little less. From recent correspondence with Dr. Walter Freeman of St. Elizabeth's Hospital, I quote the following: "In regard to the malarial proposition we are still as enthusiastic as ever although we do not say it is the only treatment. We do believe, however, that some form of fever treatment is superior to all other forms. We have recently been surveying our five year cases and find that the percentages found after three years have remained practically constant. In other words, that there have been no recrudescences in the satisfactorily treated cases. Some 30 per cent are considerably improved, many of them holding jobs on the outside, about 30 per cent or so are rested but showing psychic scars from which there is little expectation of recovery, a scattering deteriorating still, and a somewhat larger percentage dead. Of course, in comparison of the usual run of life in paretics, the statistics are outstanding, for scarcely one in a hundred ordinary paretics would be alive at the present time, five years after remission.

"I am still impressed with the effect upon the anatomical picture, having just recently had occasion to examine a brain from a paretic treated who died fourteen months later. Paresis is not recognizable in the slides from the brain. I am sending you a reprint of my article on the anatomical changes and refer you to last year's Medical Journal and Record, Ferrarros' contribution detailing the three years' results from a clinical and serological standpoint. The latter are exceptionally important in administering the long time necessary before evaluating the results.

"At the beginning of our sixth year, we have inoculated recently another batch of 65 paretics which the malaria is working well. I hope you can introduce this form of treatment successfully for as I see it it offers far more hope than any other form devised.

"We are beginning to think here that arsenical treatment is an important predisposing cause in the development of paresis in a syphilitic, but we have not yet marshalled our figures."

In the few cases I treated with Dr. C. V. Unsworth in the Louisiana Retreat, New Orleans, this past year, the results obtained appear almost miraculous. It is of particular interest that these cases had received no previous specific therapy and that they were of the ideal type in that they were recognized early, and of vigorous physical make-up. Briefly, these cases presented typical serological findings with delapidation in the psychic field. Neurologically they were organically negative except for pupillary abnormalities with slight exaggerations of knee jerks. They were brought to us with the personality changes—the outstanding feature of which was grandiosity. One case, our only fatality, had previously received intensive intravenous therapies with definite somatic disease. Contrary to general impression, our best results have been obtained by subcutaneous inoculations; our failures

were 100 per cent intravenously. In our series, symptomatic malaria appeared from ten to fourteen days after inoculation. The quantity of malarial blood injected varied from 3-10 cc. In three cases it was free from syphilitic infection—which we believe is more desirable; the pure malaria plasmodia seeming to be of a more virulent type. In all instances, these patients were allowed to defeat the malaria, being alert for any sign of symptom which might call for immediate malarial therapy. The outstanding features of which we are particularly apprehensive being acute jaundice or an extreme hyperpyrexia with convulsions. A hypernutrition diet with elimination were considered essential in sustaining the patients during the acute illness.

SUMMARY.

Malaria therapy in paresis is particularly indicated in the early untreated cases and in those of vigorous physical make-up. The earlier a paretic is inoculated, the more favorable the prognosis. Best results are in those patients who are allowed to defeat their own infection. In my hands, subcutaneous inoculation has been the method of choice and has resulted in a greater number of "takes." Somatic disease, general physical debility are definite contraindications. The most pronounced improvements have been in the psychic sphere. In our unsuccessful inoculations we have concluded either our technique was at fault, the organism of an attenuated character—that is, weakened—or the patient possessed a natural immunity.

DISCUSSION.

Dr. C. S. Holbrook (New Orleans): The picture presented by paresis has been so discouraging that anything that points to improvement is well worth while. These cases, up to the present time, have practically always died within three years after the infection, or rather after the disease has become well recognized. In the hospital one does not find very many general paretics; dementia praecox constitutes about fifty per cent of the hospital population with a comparatively small percentage of paretics, not that the disease is rare, but because death occurs within three years—at least that has been the

experience until quite recently. Now we feel more hopeful about it and believe that inoculation with malaria will give results that cannot be equalled by any other treatment. Just why malaria should be of greater value than other forms of hyperpyrexia is not understood. There apparently is some metabolism deficiency in the paretic. It has been noticed for years that the patients who develop paresis, about four to five per cent of those who contract syphilis, have little systemic effect and no skin reaction. It has been held that the metabolic resources of the body were at fault. Bringing about high temperature by vaccine or milk, has not given as good results as the malaria treatment and it is thought that the introduction of this disease in some way increases or overcomes the existing deficiency. It is rather interesting to note the report on several of these cases treated by this method.

Report No. 1. Markowitz in 1925 reported a case. The patient developed a gumma of the skin of the forehead just two months after being cured with malaria, that is, "cure" as the word is used.

Report No. 2. F. O. Schulze, in another article, reported tertiary syphilis of the skin in three cases of paresis subsequent to treatment with malaria.

Report No. 3. Wagner von Jauregg also showed in a typical paretic one year after treatment and restoration the patient developed aphasia, agraphia and Jacksonian attacks, but no psychic disturbance. Treatment with mercury and salvarsan cleared up the slighter symptoms.

They attempt to show that the specific reaction was taken care of by changing the resistance of the body through the inoculation of this disease, malaria. It may be true. The best results are achieved where malaria is brought about with some other treatment; as Dr. Unsworth has indicated, salvarsan, mercury, bismuth salicylate and some of these drugs.

My experience with malaria has not been very extensive; the opportunity to handle these cases in private practice does not occur as often as one might hope. I have twelve cases that have gone back to work; I have two others that are demented. On the whole, the results are encouraging. The remissions are brought about in 25 to 60 per cent, depending on the criteria that the various men hold as cure or remission. This malaria treatment, of course, carries with it a rather dangerous mortality or morbidity. One patient gave me a great deal of worry. He developed fever 107° and every red cell contained malaria plasmodia. I was terrifically upset about it. The patient did very well under anti-malarial

treatment. I think some of these cases do not respond to malarial treatment. Some will not contract the disease. Recently I had a patient who was given malaria and after a short time, four to five days, he spontaneously recovered from his malaria, so in that case this form of treatment had to be discarded. He might have been treated with milk or Koch's vaccine and possibly gotten good results.

There is one warning that might well be sounded, viz: that malarial treatment should not be given in any cases of syphilis of the nervous system except the patient has paresis or tabes. There has been a great deal of publicity about this treatment and it has been suggested that all types of cerebro-spinal lues should be treated with malaria. It was only recently that I had a comparatively simple case of cerebrospinal syphilis sent from Texas with the request that this patient be given malarial treatment. This would have been dangerous and unwarranted. Results can be brought about in these cases with simple anti-luetic measures. Only the parenchymatous syphilis (paresis and tabes) should be treated by inducing malaria.

Up to the present this treatment, as outlined by Dr. Unsworth, has given most satisfactory results. It will require observation over a long period of years before the benefits from the malarial treatment of paresis can be evaluated.

Dr. F. M. Johns (New Orleans): Before the malarial treatment of paresis was instituted, I do not believe that there was a more hopeless picture with regard to the treatment of syphilitic patients as seen by the laboratory man than that shown by the average patient developing paresis. Beginning at the diagnosis made by the positive spinal fluid findings, practically every case that I have seen over any period of time has shown a gradual increase in the positive findings in the spinal fluid, together with an apparent progression of the mental deterioration of the patient. Occasionally an early case would yield to very intensive arsenical and mercurial treatment and I have seen a very few cases only with central nervous involvement in which the laboratory findings in the spinal fluid were negative. We have just seen a case presented by Dr. Unsworth who has been apparently completely restored to normal. I had the pleasure of examining this patient at the time the malaria treatment was instituted and I can assure you that his recovery from a condition of actual mania to the perfectly normal, co-ordinating, intelligent human being of tonight is little short of marvelous. I have seen several other instances in which the results were just as striking and in several of whom the spinal fluid findings are gradually returning to normal.

In Philadelphia last spring I had the pleasure of seeing a number of patients treated by Dr. Frank Schamberg, Director of the Dermatological Research Laboratory, during which time quite a number of cases of apparently cured paresis were presented. Dr. Schamberg remarked that it was the concensus of opinion among many neurologists who had been following these cases that nothing in the annals of treatment of paresis so far had produced anything like the favorable results obtained by the malaria form of treatment.

While the treatment itself is rather severe, I believe that in well selected cases of otherwise physically healthy individuals this form of treatment is undoubtedly the method of choice at present and certainly offers the only hope of a clinical cure.

Dr. C. V. Unsworth (New Orleans): I have been doing psychiatry for about sixteen years and before the advent of malaria therapy whenever a patient had paresis we considered it hopeless. When anyone made a statement that he had cured a case of paresis he had to do some talking to convince the listener. I cannot see the danger of malaria therapy nor do I believe all this bugbear about patients dying from this treatment. Down here we know more about the treatment of malaria, which probably accounts for our lower mortality rate. I never lost a case of tertian malaria in my life and before inoculating with malaria never had a case of paresis get well. Of course, if you take the late cases where there has been a great deal of destruction and give them high temperatures, they will probably die. It is the selected early case that gives the best results. I was visiting St. Elizabeth's, in Washington, D. C., and had a talk on this subject with Dr. White. He has inoculated probably 50 to 75 cases with good results.

Just a few words about the patient Dr. Unsworth presented tonight. When I first saw him he was much excited, busily engaged in buying up rice mills and building homes—expansive ideas and exalted. Laboratory study showed increased globulin, a paretic curve and a four plus Wassermann. You now see him as an apparently perfectly normal individual, supporting a wife and five children. What difference does it make what you have in your spinal fluid if you can make a living? I have never seen a paretic adjust himself, economically and socially, as this man. In other treatments the gain is not so marked, either economically or socially. I believe in these cases where the treatment is properly carried out we are going to have a great future. I have had but ten or twelve patients. One Dr. Johns inoculated had temperature of 104°. We will present him in a couple of weeks greatly improved.

Dr. Connely (New Orleans): Dr. Unsworth is to be congratulated on his work. Any treatment that will help paresis is to be grasped at and tried out. Some two and a half years ago I had occasion to look over cases at St. Elizabeth's in Washington and some of their results were sensational. At that time the attitude of the men doing the work was hopefully skeptical—some still maintain that attitude. I think that probably it is best, for while at present it is probably the most hopeful treatment that we have, nevertheless, I am inclined to agree with Dr. Kimball, that we may be a little too enthusiastic over it.

Dr. Holbrook's caution in regard to being sure that we are treating paresis is well taken. It is a common idea that almost any type of cerebro-spinal syphilis should be treated with malaria. I do not know if Dr. Kimball has had cases of all sorts coming from long distances for this treatment. I had one from Los Angeles, a typical case of cerebro-spinal syphilis.

Dr. Kimball has placed his finger on the main trouble in judging accurately the value of this therapy in paresis, viz: lack of accurate statistics and the length of time necessary to find out whether the benefit is transitory or permanent.

Dr. W. H. Seeman (New Orleans): I saw this young man in an attack and had to use all the influence I could to induce him to let me do a spinal puncture. He was anxious at the time to purchase the whole of New Orleans. It happened I had treated his family, so I succeeded in getting him to postpone the big deal long enough to allow me sufficient time to do a spinal puncture.

We know that in paresis the mortality has been 100 per cent, so granting on the one hand that we take a chance by inoculating a patient with tertian malaria, on the other hand we are giving him an opportunity to get well. I was very much impressed with an article in the *A. M. A. Journal* giving the mortality in treated and untreated paresis: in the untreated cases the death rate was 58 per cent in one year; in those where malaria therapy was employed the mortality rate was 10 per cent.

It would seem, therefore, that this method of treatment does not add much danger or gravity to the situation.

Dr. Isham Kimbell (U. S. Veterans' Hospital, Gulfport, Miss.): I have been studying the treatment of paresis by inoculation with malarial blood for several years (about four years) and I am not quite as enthusiastic about it now as when I first began. It has its advantages and disadvantages. I have seen some very remarkable re-

sults in the treatment of paresis by this method, but I do think that we should be conservative about this method of treatment and keep accurate records of our cases, tabulating all our findings, details of treatment, outcome, etc., so that we may have some reliable information.

In studying these patients we have outlined a system for recording the data in each case. We like to know the length of time the patient has been under observation, the preliminary treatment, if any; the amount of malarial blood inoculated and whether administered intravenously, subcutaneously, or intramuscularly; the reaction, if any; the incubation period; further observations and any complications; the effect of treatment on the serology, including the cell count, its effect on the globulin content and colloidal gold, and the ultimate result of this treatment. In the event of death, if the body is autopsied, the accurate necropsy findings should be reported. If we standardize our work to show what we have done and compare it with the work of other investigators, we will derive some information which will prove of assistance to us in ultimately determining the value of this form of treatment. I have three groups of cases which are interesting. The first group consists of 7 patients who have been under observation for a period of three years; the second group, 27 patients who have been under observation sixteen months, and the third group, 38 patients, six months. In the first group, all the patients were advanced paretics. The second group were showing considerable dementia. Of the third group, 4 were demented, 12 were actively psychotic (six mildly so), 16 were early cases, and 6 late cases with some euphoria.

Of the first group, none died during treatment and none have died following its completion. Three are slightly improved, four much improved—all are living at this time. All of these patients were at some time disturbed, necessitating confinement on locked wards. There were some complications in these groups; nausea, vomiting and hyper-pyrexia were later serious complications and because of persistent nausea one patient could not take quinine by mouth. Seven patients were inoculated by the subcutaneous method, the others intravenously. The period of inoculation was from six to twelve days, the paroxysms ranged from five to sixteen. An atypical or irregular course of temperature was the rule. One patient had a chill and a rise of temperature every 24 hours throughout the attack; there were free intervals ranging from five to ten days, but these were not succeeded by paroxysms of greater intensity, neither could plasmodia be demonstrated in the blood at all times. Frequent examinations of the blood were made and

the number of parasites per 100 fields noted. Some investigators have reported that the intensity of the paroxysms is not dependent on the number of parasites per field, but it was in our cases. In one case there was improvement for three months after inoculation, then the patient began losing weight and he became worse mentally. A second inoculation was then done and following this patient gained weight, his general condition improved and it was not necessary to retain him on the locked ward. This patient was also given intensive anti-syphilitic treatment. All of the original 7 cases were inoculated twice, some of them three times; the last two attempts to inoculate the original 7 cases failed. Four of these cases in the first group are on an open ward, two are on closed wards and one has returned home to his work. Twelve of the patients in these groups who received the inoculation malaria treatment are now maintained on closed wards. Of these twelve cases, one is disturbed but his physical condition is good, seven are very much deteriorated, three are improving and may become open ward cases. Of those on locked wards, three are of the original 7 under observation; five are of the third group under observation six months, and the others are from group No. 2 who have been under observation sixteen months. Eighteen patients have returned home and have resumed gainful occupations. Twenty-two are engaged in active out-door work on the farm and they may eventually return to their homes. Nine have travelled a long way "on the road to dementia" and one seems hopeless and will probably die of paresis. Two cases died during the treatment, one from pneumonia, and the other following an epileptiform seizure. It has been our observation that demented types showing decided mental deterioration do not improve and that the manic or expansive types do improve. One patient who had been treated by inoculation with malaria blood and had been under observation several months developed acute mastoiditis which required mastoidectomy. This patient was one of the worst cases you could possibly see, he was filthy in his habits, would chew up his bed clothing, tear up his pajamas, and had to be kept in restraint at times. He improved very rapidly after he recovered from his mastoid infection and has returned home and has resumed his former occupation. One patient under our observation had a remission following an attack of pneumonia.

As to the changes in serology.

In the first group, all have negative Wassermann reactions on the blood and spinal fluid, the gold curve is negative, in 5, modified in 1, and unchanged in 1. In the second group, the

blood and spinal fluid is negative in 7, the blood is negative in 15 cases, and the spinal fluid is strongly positive in 5, and weakly positive in 10 cases. In the third group, the blood Wassermann is definitely negative in all except 6 cases, remaining strongly positive in these.

The study of the spinal fluid has not been completed in the last group.

Just exactly what the histo-pathology is in each one of these cases which we have diagnosed as paresis we are unable to state. The pathology of general paralysis of the insane has been clearly outlined by competent pathologists and we can now accept this outline as definite and indisputable. Do we sometimes report cases of diffuse interstitial cerebral syphilis as cases of paresis? Do we sometimes confuse other forms of neuro-syphilis with paresis? There is food for thought here. Let us get as many complete and accurate necropsy reports as possible before we make our final conclusions as to the efficacy of this form of treatment.

I thank you.

Dr. H. R. Unsworth (closing): Personally, I have had no mortality. My conclusions have been drawn mostly from observation and contact with the literature. You have to believe what you see. You saw tonight. I do not think there is any better proof that malaria is worth while than this one case brought here to demonstrate its value.

There is a very definite thing everyone knows, that is, that clinical symptomatology does not run to the serological reactions will all be negative. It is a year, or longer, before you can expect any change in your serology. I personally have heretofore always accepted paresis as the terminal stage in cerebro-spinal lues. In microscopic examination of the paretic brain following malaria therapy they are unable to demonstrate any pathology; it seems to me that the same thing must hold good in cerebro-spinal lues. I have seen some very definite, purely psychic, results in patients who were paretics; I believe your improvement is definitely psychic, that your result is in the psychic field and not organic. Your man who was not oriented, under malaria treatment becomes oriented.

I am perfectly enthusiastic about this therapy and to my mind it is certainly the treatment to employ in paresis. The earlier it is given the better the result. It is quite obvious that if you take an individual with deterioration and inoculate him with an acute disease you are going to kill him occasionally.

THE PROBLEMS OF UREMIA.*

J. H. MUSSEY, M. D.,†

NEW ORLEANS.

Before undertaking to discuss with you the clinical and the etiologic problems of this disease, not to mention the unusual findings that we get from the study of blood chemistry and the urine, I think it might be well to define just what is understood by uremia. The general conception of this term is that it is a peculiar psychomotor disturbance characterized by certain symptoms which are toxic in origin. This definition applies to the type of uremia which we usually picture in our minds as being uremia, but I should prefer to make my definition even more broad than this and include in it types of response of the human organism to any failure of the kidney function. This certainly is a most inclusive definition and will allow and permit of a rather broad discussion.

If I then define uremia as an intoxication caused by renal dysfunction, it might be well to mention the functions of the kidney which are disturbed as a result of nephritis, in the majority of cases, but which may be disarranged by some condition which has no bearing whatsoever upon inflammatory or proliferative changes in the kidney such as we see when we have urinary suppression secondary to prostatic obstruction.

The primary functions of the kidney are five in number:

1. Secretion of water.
2. Elimination of waste products by nitrogen metabolism.
3. The maintenance of optimum concentration of salts in fluids and tissues.

4. The elimination of acids.

5. The excretion of toxic materials artificially introduced.

The simplest of these functions is the excretion of water, the normal individual passing from 1,000 to 1,500 cc. in 24 hours. The waste products of nitrogen metabolism include those substances—urea, uric acid, creatinin, which we find of value in determining, by blood chemical methods, their percentage quantities in a given amount of blood. The kidney is able to excrete in the urine by a process of concentration enormous quantities of urea and other waste products. The concentration in the urine may be seventy-two times that of the blood. However, if this ability to concentrate is lost, as it is in many cases of nephritis, we find a piling up of these waste products in the blood, recognized by certain clinical symptoms which are often very hazy and indefinite, as well as by an examination of the blood. The third function of the kidney has to do with the proper balance of salts, of which sodium chloride is by far the most important. Normally the kidney is well able to do this, excreting an excess of chloride and maintaining in the blood a uniform concentration of this salt. If this particular function of the kidney fails, however, we have salt accumulating in the tissues, as the concentration of the blood is remarkably stable, and to maintain the proper osmotic pressure fluid goes into the tissues, producing edema. The fourth function of the kidney is an important one. Acids are formed during the process of metabolism. By its action with buffer salts, the kidney is able to excrete large quantities of acids in the course of a day—60 to 70 cc., or expressed somewhat differently, from 3 to 3½ grams of sulphuric acid each day passes through the normal kidney. If this does not happen, we have a condition of acidosis which, however, never attains the degree of severity which characterizes the acidosis of diabetes, for example, in which

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condition abnormal acids are formed in the body. The last function of the kidney is, of course, an extremely important one and yet it is one which does not manifest itself very frequently clinically. One of the misfortunes of this organ is that this particular function may often be very harmful and dangerous to it. The elimination of streptococci and other products produces inflammatory changes. The excretion of mercury will cause a severe nephritis and often death.

In uremia these various functions of the kidney are disturbed and disturbed in many and numerous ways. Just why the various symptoms should appear we cannot always say, nor can we attempt to prognosticate just when such symptoms may appear. Furthermore, it is impossible in the majority of cases to correlate the clinical syndrome with the pathologic picture and, lastly, we are unable to state just what is the ultimate and basic cause of uremia. Various theories have been advanced, the earliest one, of course, being that urea is retained in the blood, but we know that urea alone is not capable of producing the symptoms of uremia and we know also that uremia occurs without marked nitrogen retention. While it is true that urea in excess does not produce the symptoms of uremia, nevertheless it is quite possible that there might be increased concentration of the other nitrogen waste products, such as creatinin and uric acid. There is also the further possibility that there may be more complex fractions of the non-protein nitrogen in the blood which may be responsible for the condition. The possibility of decomposition products of these nitrogenous retention materials has been suggested, but, on the other hand, these have never been shown to be toxic. It is possible that uremia may be due to disturbance of internal secretion of the kidney or to the sending into the circulation of toxic material from disintegrated kidney cells. Phenol derivatives have also been suggested. In certain types of uremia,

spoken of as the moist type, very frequently the symptoms may be due to cerebral edema, as is seen in the so-called moist type of uremia. The one definite positive information that we have has come from the researches of Nellis Foster, who has been able to isolate from the blood of uremic patients who had the convulsive type of uremia, a crystalline substance which when injected into animals could reproduce the psychoneuromotor syndrome of uremia. This certainly represents a type of uremia which is due to some abnormal product of metabolism.

From the clinical point of view we are accustomed to divide uremia into three main types—the one associated with marked nitrogen retention associated with psychoneuromotor symptoms and often spoken of as the dry type of uremia; and the moist type without marked nitrogen retention but with a retention of chlorides. Lastly, we have the type in which the toxic substance of Foster has been found. This manifests itself chiefly in epileptiform-like convulsions. The first two types are just as much uremic in their origin and manifestation as is this third type which presents the classic picture of uremia. The type with nitrogen retention, seen probably more beautifully in mercury poisoning than in any other one condition, presents none of the outstanding features of uremia. These patients frequently go off into a quiet sleep after becoming more and more comatose and at no time have any unusual complaints. This is illustrated very well by a patient, J. P., a young woman, aged 27, who took three one-half gram tablets of bichloride of mercury. The patient, after the preliminary vomiting and purging, apathetically lay in bed, was quiet, but talked until the eleventh day of her disease, when she sank into a coma from which she could not be aroused, and she died within two hours. The moist type of uremia, likewise, does not show any very unusual symptoms suggestive of renal insufficiency in a sense that we have

psychic and nervous manifestations. Extreme edema of the brain produces somnolence and then sleep. Illustrative of this type is the case of Mrs. M. M., an old lady of 65 years of age, who was admitted to the hospital during a period of unconsciousness, which when she was aroused from was not accompanied by any preliminary signs or symptoms. Blood pressure was not unduly raised, non-protein nitrogen was not unduly high, phthalein elimination was good. Urine showed a considerable amount of albumin, fairly high specific gravity, numerous casts. Another case is that of Mrs. P. T., who came into the hospital with rather pronounced anasarca. This patient also had marked increase in her blood pressure, some cardiac enlargement, stupor, fairly high non-protein nitrogen, in the urine a large amount of casts and great quantities of albumin, together with a phthalein elimination which varied between 15 and 25. While in the hospital she several times became extremely stuporous and had numerous attacks of paroxysmal dyspnea. She represents the moist type and shows quite clearly that there can be no absolute and definite, clearcut delimitation of the one type from the other. J. M. S., on the other hand, 45 years of age, was admitted to the hospital with convulsions which came on suddenly. This patient had failure of vision, blood pressure of 210/160, a low non-protein nitrogen, never above normal figures, specific gravity which was invariably low, a fair degree of albumin and a low phthalein elimination, which increased from 18 per cent on admission to 55 per cent at the time of his discharge. This patient was the convulsive type of uremia, yet she had physical examination and urinary findings which were rather unusual for a condition with outstanding manifestations such as this convulsive type.

The Manifestations of Uremia. I have given three histories briefly rather from the point of view of illustrating severe

types of uremia rather than to call attention to the manifestations of the condition. These are so obvious that they would not be likely to occasion much difficulty in diagnosis. On the other hand, employing the broad definition that we have given for uremia, a tremendous number of patients are observed with symptoms which are undoubtedly due to the effects of kidney insufficiency and for that reason are really manifestations of uremia.

Urinary Symptoms. Given a patient with indefinite, irregular, vague and atypical symptoms, it is wise always to suspect uremia. The first study that is made after the history has been taken and physical examination has been completed would be the examination of the urine. Here we find tremendous discrepancies which are often puzzling and indefinite. Albumin may be present in large quantities or it may be absent. Casts may or may not be present. I have seen patients with marked edema give a normal phthalein output. Why we should get these marked variations in the urinary symptoms is one of the puzzles of this condition.

Psychoneuromotor Symptoms. The psychoneuromotor symptoms are of great importance in the diagnosis of uremia. The psychic syndrome is on the whole decidedly more important than is the neuromotor. The psychic symptoms may range from a low grade delirium to pronounced excitable states. At times the patient suffers from hallucinations. At other times they may be stuporous or even comatose. Delirium at night is fairly common and insomnia is a distressing symptom even in those patients who are most stuporous. The nervous manifestations include attacks of paraplegia or hemiplegia, aphasia, neuralgias and headache. Of these neuromotor symptoms, most interesting are those associated with transient loss of power in the extremities or with aphasia. Oftentimes this phenomenon is extremely short and may disappear

in an hour or two. At other times it may last for twenty-four hours. Headache is one of the annoying symptoms. This is almost invariably present and at times reaches a high degree, causing intense suffering of the patient. The uremic neuralgias are fairly common. I have seen pain in various parts of the body explicable only upon this basis.

Respiratory Symptoms. Cheyne-Stokes' respiration is extremely frequent, but it is found in a good many other conditions. Paroxysmal dyspnea seen at night is in the same category, but true pulmonary edema may be said in many cases to depend entirely upon impairment of kidney function.

Cardiovascular Manifestations. Hypertrophy of the heart and high blood pressure are a constant finding in the most frequent type of nephritis—namely, the chronic nephritis without edema. In other types of nephritis these findings are not always observed, but because of the fact that the chronic type without edema is so common, we are accustomed to associate the high pressure and hypertrophy of the heart with uremia. It is quite compatible with having true uremia to have a low blood pressure. Riesman* reports a case in which the systolic pressure was only 84.

Ocular Symptoms. In many cases our diagnosis of uremia can be made only upon correlation of the whole symptom complex. One of the most important examinations to be made is the use of the ophthalmoscope which may show many changes which are essential in building up the clinical picture. The occurrence of choked discs, neuroretinitis and exudates on the retina may be findings which will finally determine the nature of the condition.

The Prognosis. It is impossible to tell what the ultimate outcome will be in patients who present the subjective and

objective phenomena of uremia. The individual who develops uremia as a result of urinary suppression from a large prostate, for example, may live on for years after the condition which caused the suppression has been removed. The patient with symptoms of uremia following scarlet fever may entirely recover and never have a sign or symptom afterward indicative of renal insufficiency. Even in fairly advanced and well marked cases of nephritis, the patient may live for years. I have in mind a far advanced case which I have followed for three years. E. B. came under my observation early in 1925 when he was brought into the hospital because of sudden unconsciousness. He had a blood pressure of 230/150. He was in coma for forty-eight hours and then came out of it. His non-protein nitrogen was high, albumin was 9 per cent, phthalein elimination 20. On and off for the next three years he came into the hospital for a short time on account of headache or because he had been picked up unconscious. His eye were almost blind and he had extremely high pressure, yet, except for these annoying attacks of unconsciousness he was able to carry on and make his living. When he was finally brought into the hospital a few weeks ago he developed urinary suppression from a large prostate and died in the course of a few days.

Treatment. It hardly seems advisable to go into a detailed discussion of the treatment of uremia. It boils down to two main features. First, remove the cause, if possible. If, unfortunately, it is not possible to remove the cause, then encourage elimination by the drinking of large quantities of water, free purgation and sometimes sweating. There are one or two features in the treatment that I would suggest should not be overlooked: First, diet; second, venesection; third, diuretics. The diet should be plain and non-irritating. Milk is the food that can best be taken and its value may be enhanced, when the patient's stomach is extremely irritable, by

(Riesman, David R., Southern Med. Jour., 16:160, March, 1923.)

adding carbonated water. Cereals are of value and they should be well sweetened in order to get the caloric effect of the sugar. Well sweetened fruit juices are also advisable to give the patient and sometimes can be retained when milk cannot. Under any circumstances, as soon as the patient has recovered from his acute manifestations of uremia, do not be afraid to give him plenty of food and always give a sufficient amount of protein food without fear. Nitrogen equilibrium may be obtained with approximately a gram of protein per kilo of body weight.

Venesection. In active uremia, venesection is incomparable. For the patients with the severe headaches without any other psycho-motor symptoms, venesection is also of value. That same thing applies to the individual with high blood pressure. In these cases rather frequently repeated small venesections are best adapted. For the extremely severe headaches which does not respond to the ordinary forms of treatment, I have found lumbar puncture extremely valuable.

Diuretics. A word about these much abused preparations. Keep away from them. Their action on the kidney in the great majority of cases is primarily a stimulation followed by secondary exhaustion. Their beneficial effect is extremely temporary and their after effect is usually markedly deleterious. Under no circumstance would I recommend their employment.

DISCUSSION.

Dr. W. A. Dearman (Gulfport): I deem it a privilege to have an opportunity to discuss this classical paper of Dr. Musser's. He has very clearly enunciated the etiology of types of uremia that may come under our vision, and the blood changes as well as the urinary findings. There is no question but what many a man has died of uremic coma with a normal blood history and a normal urinalysis. It is puzzling and baffling sometimes to have to think of this. I am glad to hear Dr. Musser condemn diuretics in uremic cases of any kind. I have a patient who, before I saw him, had been to a neurologist. He was completely blind because of retinal edema. Dr.

Musser brought out, I remember, clearly the cerebral symptoms. However, a few nights ago a patient was in rather a comatose state, violent headache and occasionally some nausea and vomiting, and a Cheyne-Stokes respiration. I found him nervous, under the influence of morphin, and I suggested to the doctor with whom I was in consultation, that he discontinue the opiate and his respiration cleared up promptly. I saw that also in a child. Dr. Musser also condemned, as I say, the diuretic treatment. It will not do to stimulate and inflame the kidneys, for they are not functioning well any way. They are doing all the work they can possibly do. To stimulate them further is not unlike whipping a horse after it had fallen in the road completely exhausted. I have a patient now who had been taking 15 grains of pmorphin for sometime, and enough poison was being eliminated into his kidneys to set up an exacerbation of a pre-existing nephritis. They had given him 30 minims or about 2 cc. of spirits of nitre every hour and a half, and they added to that, which was about the last straw to break the camel's back, 15 drops of spirits of turpentine every four hours, and were doing that for four days. He was as blind as a bat. I presume he is dead now, I don't know.

The uremic state will offer a complex occasionally. They are usually well delineated or clear in the minds of men from investigation. Dr. Musser brought out the importance of the eye being carefully examined. This is very important, indeed, and will even give you a clue to what is going on when other symptoms are in doubt. There are certain defined conditions in the fundi which will lead us to an accurate diagnosis. I see much cerebral arteriosclerosis, sometimes with retinal changes closely simulating those of the uremic state. I think this paper very illuminating and one that is timely.

Dr. W. W. Crawford (Hattiesburg): Mr. Chairman and Gentlemen: We have not gotten away from our appreciation and veneration for our professors. When I was a student in Philadelphia I used to hear Dr. Musser at the University of Pennsylvania on rare occasions, and I was quite impressed with his astuteness as a teacher of medicine, and today it is my privilege to stand up and discuss a paper by his honored son. We are very glad indeed to number among the teachers of medicine in the South, Dr. J. H. Musser. It goes without saying that his contribution to this program today is replete with valuable information. It is further apparent that any discussion on my part would lend nothing to the information to be acquired from this paper.

I was very glad to hear Dr. Musser say that uremia is a rather will-o-the-wisp-sort of thing. You can't put your finger on it. You see things

that it does to the body, but you are not so sure from what particular chemical source they are. Dr. Bourchard, you will remember years ago, demonstrated that a patient might have uremia for several days and yet not develop uremic symptoms, certainly not uremic coma, which means of course that that thing we denominate uremia did not operate in that particular patient's experience. Of these cases of uremia that we constantly see, cases in which the uremia is a chronic manifestation, particularly those complicated by hypertension associated with nephritis, we may say that we have a condition that cannot be rectified, and therefore we must be ever on guard to keep our patient in the best possible condition if he is to live for a number of years.

Speaking of the surgical aspects of uremia, a great many patients come into serious trouble in the surgeon's hands, if the surgeon fails to recognize the necessity of estimating the functional capacity of the kidney before operating. Time and again we have seen patients who were secreting an adequate supply of negative urine, and yet, when we made a real functional test, we would be apprised of the fact that the kidney was totally incompetent, and that if an operation of any special moment with ether anesthesia was done on such a patient, we should have regretted it.

We are coming to appreciate in surgery more and more the importance of a pre-operative preparation of our patients, and there is no factor that is so significant as the recognition of this question that leads to the condition that you call uremia. Just so surely as we operate on a patient with a low renal function test, just so surely shall we get into trouble. Unfortunately, when you recognize the fact that the kidney is incompetent, however urgent the operation may be, it is best to let it along. Time and again have we had occasion to say to a patient who should have surgery, that we can not afford to operate because of the fact that there is an incompetent kidney. I enjoyed the doctor's paper very much and want to congratulate the Mississippi State Medical Association on having him as its guest.

Dr. L. S. Lippincott (Vicksburg): I have enjoyed this paper very much. Nephritis in general is one of the most important subjects and I would like to ask Dr. Musser, if I may, what significance he puts on the retention or non-retention of uric acid in kidney disease, particularly in uremia. We were taught at one time that uric acid was the first of these products to be retained, and at that time we thought it was very important that we get back at early kidney disease. It has not worked out so. It is not an early product and it isn't always a later product. I would appreciate very much the doctor's opinion on that.

Dr. J. H. Musser (closing): First, I want to express my appreciation to you for inviting me

here today, and giving me an opportunity of talking to this splendid body of men. I thank Drs. Dearman, Crawford, and Dr. Lippincott also, for their points of discussion. In regard to the question Dr. Lippincott asked, I think that uric acid is to a certain extent a sign of some value. You can not say definitely and positively about it. The test of uric acid is somewhat a bad prognostic import, I think, of kidney insufficiency, but it is not absolute.

The question of protein is rather important. It is necessary to maintain the equilibrium, and to do that, you have to give nitrogen a certain quantity of protein. The protein should be given by the mouth and should be sufficient to keep a normal equilibrium between the intake and the output, so don't be afraid to give a certain amount of protein in your therapy. It is quite essential. I wanted to call attention to the fact that a few years ago efforts were made extensively to classify types of nephritis according to the different types of anatomic lesions in the kidney. I have been following Dr. Henry Christian's classification of nephritis rather extensively, and that is a classification which is based entirely on clinical symptoms, chronic nephritis with edema or without it. It is a very simple classification and one which I think is of great value because it does not attempt to make this differentiation between different portions of the kidney which are involved. It gives us rather a clear cut easily recognized clinical picture. Again want to thank you very much.

USE OF MERCUROCHROME AS VAGINAL ANTISEPTIC IN INDUCTION OF LABOR.—

Evidence is presented by Harry Welday Mayes, New York, to show that when 4 per cent mercurochrome-220 soluble is used as a vaginal antiseptic prior to the induction of labor, the safety of the hydrostatic bag is greatly enhanced. For two and a half years the use of mercurochrome as a vaginal antiseptic has been adopted as a routine procedure at the Methodist Episcopal Hospital, and there have been 3,500 deliveries with an uncorrected morbidity of 8.6 per cent. In a series of ninety-three induced deliveries in the period from 1917 to 1924 there was a morbidity of 29 per cent, with an average of 2.08 days of morbidity for each patient. In this series there were eight maternal deaths, a mortality rate of 8.6 per cent. For the years 1917 and 1919 the morbidity rate was 40 per cent. Since the routine use of mercurochrome for all deliveries was instituted, seventy-eight patients have been delivered after the induction of labor by means of the hydrostatic bag. During that time, the morbidity has been 11.5 percent as compared with that of 29 per cent in the earlier series; that is, 60 per cent less as compared with the morbidity without mercurochrome. At the same time, the maternal mortality has been reduced from 8.6 per cent to 1.3 per cent, and the average period of morbidity from 2.08 days to 0.57 days.—J. A. M. A., Nov. 12, 1927, p.

THE COMPLICATIONS OF CANCER.*

GEORGE T. PACK, M. D.†

BIRMINGHAM, ALA.

The complications of cancer are of timely interest because: (a) The initial symptoms of certain cancers are heralded by the onset of complications, (b) most cancerous individuals die from complications, rather than the natural progress of the disease, (c) complications form the most important barrier to the successful treatment of malignancies. In this short résumé, no attempt will be made to discuss the signs and symptoms of cancer of any particular organ, nor will the nature and distribution of metastases be considered.

THE LOCAL COMPLICATIONS.

MECHANICAL CONSEQUENCES OF THE PRESENCE OF CANCER.

The mechanical disorders induced by volumetric increase of a malignant neoplasm are no different than those produced by benign tumors. Epitheliomas and gliomas of the brain give the same syndromes of intra-cranial hypertension as do cysts and fibromas; cancer of the prostate provokes the same troubles as simple adenomatous hypertrophy, plus the subsequent effect of infiltration.

By the time a cancer has caused stenosis sufficient to evoke symptoms, it is very late in its course. It is only rarely that absolute stenosis with complete obstruction of a visceral lumen is seen, as in the esophagus, pylorus and Vaterian ampulla. As a rule the lumen of any canal, which is infiltrated by neoplastic tissue, is a patent, rigid, inextensible ulcerated tube. The perverted functioning of the part, expressed as recognizable symptoms, is usually due to immobility and an accompanying spasticity.

The orificial stenoses are more commonly caused by infiltrative growths than by enormous and occluding vegetations. For instance, scirrhus growths of the recto-sigmoidal junction cause obstruction earlier than the bulky, exophytic, vegetating tumors of the rectal ampulla.

TROUBLES OF DEFICIT.

Troubles of true deficit due to loss of function, because of massive destruction of organs by cancer, are infrequent. Only a very small portion of liver, kidney (1/10), thyroid and pancreatic (1/8) substance suffices for the maintenance of normal function. This offers the explanation why myxedema is uncommon in thyroid cancer and why diabetes practically never occurs as a result of pancreatic malignancies.

ULCERATION.

The appearance of an ulceration is a critical event in the history of any cancer. The ulcerated cancer is then no longer a latent affection. A new phase begins, which is rich in the possibilities of accidents and symptom-provoking events. This is the opportune moment to issue an admonishment against biopsy of a tumor, when the superficial mucous membrane is unbroken, as in such locations as the rectum and bronchus.

Ischemic necrosis and infection are the two chief factors which concur in the formation and in the incipency of neoplastic ulcerations. The neoplastic tissues are frequently fragile; they are more vulnerable to nutritional impairment and irritations than normal tissues. When tumors acquire certain sizes, foci of degeneration appear in edematous and hemorrhagic zones.

The inflammatory lesions which accompany the neoplasia are generally greatest at the periphery. In mucosal cancers of the digestive tube in particular, the inflammation of the mucosal wall is infinitely more extensive than the tumor itself. The inflammatory infiltrations are subacute;

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at the periphery, the reaction is proliferative and sclerotic, but on the surface it is necrotic, degenerative and suppurative. The ulceration is, properly speaking, an ulceration of tissue invaded by a cancer. This submucosal extension of cancer and inflammation together is especially noticed among cancers of the stomach, esophagus and large intestine.

Cancers which begin on the surface, as the carcinomas of the skin and mucous membrane, commonly ulcerate early. Fortunately malignant skin ulcers have usually a torpid growth. The ulceration is frequently contemporary with their initial appearance. However, some deep neoplasms of the skin may propagate early by metastasis and remain covered by intact epidermis for a long time.

The simple chronic ulcers and cancerous ulcers of the stomach resemble each other so much at times, that they are frequently the cause of regrettable confusion. In cecal disease, the eye of the surgeon can distinguish the thick infiltration and blanching of the obvious cancer, and the tubercles, peritoneal nodosities and irregularly ulcerated mucosa of advanced tuberculous cecitis. But in other instances, a histological study alone demonstrates with certitude the true nature of the process. Analogous difficulties exist in the interpretation of rectal ulcers. Ulceration of tumors of the breast, tongue, floor of mouth and cervix uteri merit weighty consideration and concern.

THE INFECTION OF CANCERS.

Ulceration opens the portal of entry for organisms. This is unfortunate. Ewing has observed that tumor cell mitoses are much more numerous in an infected part of a tumor than in a non-infected part of the same tumor. Pyogens and saprophytes of all orders complicate the ulcerative lesions of the skin, mouth, stomach, intestines, rectum, cervix uteri and bronchus. The resultant inflammation in the tumor

has the same characteristics as infection elsewhere.

Acute phlegmonous or suppurative infections are but transient episodes in the history of any cancer; the majority of infections are subacute or chronic. A predominance of polynuclear neutrophils, red blood cells, macrophages, eosinophils, and infant connective tissue cells indicates the acuteness of the infection; the accumulation of small mononuclear cells, the abundance of fusiform cells and collagenous fibers indicate a tendency to sclerosing proliferation. Sclerosis is protective as well as inflammatory. The proteolytic digestion of enormous necrotic and suppurative cancer areas, contributes to the fever induced by the infection. Microbic infection may occur not only in the primary tumor, but may accompany the metastatic tumor deposits in the regional lymph glands.

Erysipelas with diffuse and tubular lymphangitis occasionally attends cancers of the skin and mucous membrane. W. B. Coley observed spontaneous regression of a skin sarcoma following erysipelas infection, and from this occurrence, conceived of the preparation of a bacterial toxin for the treatment of sarcomas (the well-known Coley's toxin). I have observed the healing of an ulcerative endothelioma of the parotid gland after the complication of facial wound erysipelas.

Ulcerative cancers of the floor of the mouth are frequently followed by large adeno-phlegmons of the neck. A contributing cause for this is the common extension of the sublingual glands through the muscles forming the floor of the mouth. Diffuse phlegmons of the pelvis minor are not uncommon in the presence of cancers of the rectum and prostate.

The most dangerous cancerous fistulas are those which communicate the trachea and esophagus. The most frequent cancerous fistulas are those which open be-

tween the vagina and urinary bladder, or between the vagina and rectum, or in the male between the urethra and rectum.

HEMORRHAGE.

The blood vessels of the cancer, the same as those which supply normal tissue, are sensitive to vasomotor influences, so in certain cases can become passively or actively congested. Under such circumstances an important hemorrhage can issue from an insignificant vascular lesion. In sarcomas and large carcinomas of the kidney, testicle, and ovary, infarctions frequently result in extensive interstitial hemorrhages. The friability of tumor tissue, the mechanics of slight traumas, the changes in temperature and inflammatory congestion and necrosis by bacterial action, are the contributing causes to hemorrhage.

Infection provokes the development of a richly vascular granulation tissue. As a rule the hemorrhage occurs from the tumor proper and not by contact with the tissues which it invades. The separation of large sloughs, produced by necrosis and infection, often causes violent hemorrhage, when the necrosis is too rapid to permit the included blood vessels to become protectively closed against hemorrhage by obliterative endarteritis.

Oftentimes it is a sudden and unexpected large hemorrhage, which reveals to the patient the existence of a cancer of the stomach or of the uterus. The direct hemorrhage from cancers of the tongue, the blood in the vagina from uterine cancer, the melena in cancer of the rectum, and hematemesis in cancer of the stomach are of diagnostic and prognostic significance. One occasionally sees in a cancer of the cervix, an arteriole of large calibre, giving rhythmic jets of blood, so as to necessitate ligation. Rupture of a great vessel as jugular vein or lingual artery, may result from cancerous infiltration of its wall and lead to profuse hemorrhage and death.

THE SPECIFIC VISCERAL COMPLICATIONS OF CANCER.

THE BLOOD.

Researchers have sought for a definite, unique hematologic form of cell or plasma constituent, which would give a specific sign of cancer, or serve as a prognostic evaluator, but these efforts have been futile. In addition to hemorrhage, most authors concede a direct influence of the cancerous process on the hematopoietic system. They have said that the habitual cancer anemia is established as the result of a sort of equilibrium between the hematotoxic and myelotoxic action of the cancer, on the one hand, and hematopoiesis on the other. The hematologic syndromes are those of either a simple or a pernicious anemia, *i. e.*, orthoplastic or dysplastic.

When anemia appears in the cancerous person, it is usually a simple, secondary form. The red blood cells have their normal form; their response to hypotonic fragility tests is normal. The sedimentation time is normal. The coagulation time and bleeding time are normal, therefore the accidental profuse hemorrhages are strictly local phenomena and are not expressions of a generalized blood dyscrasia.

Nucleated red blood cells are rarely found in the simple secondary anemias. If the red blood count is fairly high and yet normoblasts occur, it may suggest metastasis to the bone marrow. Such a condition is termed myelophthisiccanemia. Data from the Mayo Clinic indicate that anemia is quite common in cancers of the ascending colon and cecum, less so in those of the transverse colon and progressively less common as the rectum is approached.

One is occasionally surprised to observe an erythrocyte count of 4,500,000 with 80 per cent hemoglobin in a cancerous patient, who appears very pale and anemic. This pallor is different from the ochrodermia of chlorosis and the pallor of simple secondary anemia.

In the very rare pernicious form of anemia in the cancerous patient, the hemoglobin percentage is below 50 per cent; there is an increased fragility of the erythrocytes, a diminished coagulability of the blood and a progressive course. The bleeding time is as high as 25 minutes. Normoblasts abound and poikilocytosis exists.

There are no specific changes in the white blood counts in cancer; infection of the cancerous area elicits the usual response.

THE DIGESTIVE TUBE.

Of all the accidents which accompany the development of malignancies of the digestive tube, the mechanical troubles are the most common. In the early siege of cancer of esophagus, pylorus or intestine, it is some interference with passage of the bolus, which often reveals the tumor.

Cancer of the pharynx and esophagus do not cause stomach troubles if the patient can be made to eat. The appearance of the signs and symptoms of gastro-intestinal dysfunction indicates always that the patient has entered into the period of complications. In fact, during the course of evolution of gastric cancer, the digestive symptoms are usually slight and are ignored.

The complications of gastric cancer are stenosis, anemia, cachexia, hemorrhage, uremia and hepatic insufficiency due to indirect action on the kidneys and liver. The gastric functions remain excellent for a long time in patients having cancer of the rectum or large intestine.

Carcinoma of the esophagus is sometimes complicated by lung abscess. Papillary, pedunculated and polypoid tumors of the small intestine occasionally become incorporated in intussusceptions because of peristaltic traction on the exposed body of the tumor.

THE LIVER.

Metastasis into the center of the liver is often silent and is discovered only at

necropsy. Cancers of the ampulla of Vater, of the head of the pancreas, of the gall-bladder and of the stomach with malignant lymphadenopathies, produce alarming symptoms which attract the attention of the patient. Even incomplete obstruction of the bile ducts will occasion dilatation of the biliary canals, bile stasis, augmentation in liver volume, icterus, suppressions of biliary function and digestive disturbances.

Courvoisier's law owns many exceptions, but it is generally true: In jaundice due to pressure on the common bile duct from without, as from cancer of the head of the pancreas, the gall-bladder is distended, whereas in jaundice due to impaction of a stone in the common duct the gall-bladder is usually contracted. The icterus of cancer is further distinguished from the icterus of lithiasis by the fact that the former is followed usually by fever and disorders of hepatic insufficiency. It is very important to realize that infection of the biliary passages is the rule, in those cases where obstruction is caused by a neoplasm.

Oftentimes the icterus is the only symptom or the only clinical expression of the disease, and the cause of it may be problematical, requiring roentgenological explorations, fecal examinations and researches into pancreatic insufficiency. This icterus is a grave, mortal condition.

THE PERITONEUM.

The most banal of all peritoneal responses to adjacent cancers is a localized inflammation or peritonitis in the neighborhood of the neoplasm, which causes adhesions and enclosed spaces containing serous exudate. A plastic inflammatory reaction always accompanies cancerous infiltration of the peritoneum. Cancers of the rectum, prostate, uterus, intestine, kidney and pylorus produce this type of peritoneal condition.

It is remarkable that most of the cancers of the rectum, uterus, sigmoid colon, cecum

and urinary bladder do not provoke ascites frequently, whereas it is very common after metastases from stomach and testis. The ascites of cancer is never comparable in volume with that accompanying portal cirrhosis of the liver. The ascitic fluid is a lemon yellow, clear, slightly fibrinous, occasionally hemorrhagic exudate, which may show the cell-groups of Foulis, on microscopical examination of the centrifuged sediment.

Chylous or milky non-inflammatory ascites may follow occlusion of the thoracic duct.

The classic type of fulminating general peritonitis is exceptional in cancerous individuals. It occurs as a terminal infection, in consequence of a precocious perforation of a cancer or of an intestinal obstruction, especially of the large intestine. However, malignant ulcers of the gastro-intestinal tract seldom perforate. The suppurative peritonitides accompanying secondary peritoneal cancers, are always localized, blockaded pockets of pus; for example, one seldom observes subdiaphragmatic abscess complicating abdominal cancer.

THE LUNG.

The tolerance of the pulmonary parenchyma to the development of neoplastic growths is remarkable. Tuberculous infection of a comparative degree causes considerable anatomical and functional disorders, but the more important neoplasms propagate in silence. The evolution of pleuro-pulmonary cancers is usually insidious. Dyspnea and expectoration do not appear in the majority of cases until after bronchial ulceration occurs.

Obstruction of a bronchus by an invading cancer causes atelectasis of the adjacent lung, accumulation of secretion within the bronchioles and the development of broncho-pneumonic foci. Broncho-pneumonia is also a terminal infection, frequently occurring by aspiration in cancers of the mouth, pharynx and larynx.

The invasion of the pleura by cancer often produces no inflammatory reactions. The pleura is not as sensitive to neoplastic infiltration as is the peritoneum. Sometimes a clear, greenish-yellow, fibrin-poor, pleural effusion will appear, but possibly a concomitant infection is necessary to induce this transudation. The presence of a sanguinous liquid in the pleural sac, which is insisted upon by some authors, is the exceptional rather than the usual finding. Such a fluid indicates a special kind of pleuritis, or possibly the degeneration of a pleural tumor, such as the vegetating endothelioma of the pleura.

Pulmonary gangrene and pleural empyema are very rare complications. Cancer of the pharynx may cause stertorous breathing or snoring. Cancer of the larynx may cause stridulous breathing or stridor. Cancer of the trachea or pressure against the trachea by extra-tracheal tumors may obstruct it to produce the peculiar leopard growl.

THE MEDIASTINUM.

The disturbances produced by mediastinal tumors are variable and depend on the tissues compressed and the location of the enlargements. The symptoms are directly due to irritation and compression of such structures as nerves, bronchi, heart and blood vessels. The two functions most interfered with are respiration and circulation.

Dyspnea is the first and often the only sign of mediastinal neoplasm; the following types occur—effort dyspnea, dolorous dyspnea and dyspnea in the form of nocturnal asthma. The cardiac difficulties are due to displacement of the heart resulting in tachycardia, arrhythmias and the syndrome of myocardial asthenia.

Stoke's sign is an edema and cyanosis of the neck, face and upper extremities following partial obstruction to venous return through the superior vena cava. Death may be due to broncho-pneumonia,

embolism, myocardial failure or cardiac thrombosis.

Dysphagia from esophageal obstruction is uncommon. Involvement of a phrenic nerve has resulted in persistent hiccough. Malignant tumors of the upper mediastinum may press against or irritate or destroy the recurrent laryngeal nerves, causing the brassy or "goose" cough, or may result in the asphyxia of bilateral abductor paralysis.

THE CARDIO-VASCULAR SYSTEM.

The capillaries of the host are intimately associated with the parasitic cancer. Sarcomas and some epitheliomas may perforate into the lumen of the vessel to form vegetating masses, which frequently are the source of emboli. Some of the blood vessels of the cancer are converted into hyaline cords by a sclerosing inflammation in their walls. Inflammation is more destructive of large blood vessels, than is the neoplastic process. Obliteration of the nutritive vessels in the pedicle of a pedunculated tumor results in immediate necrosis.

Lymphedema of an upper extremity, either subsequent or unrelated to axillary dissection for cancer is of unknown cause. Handley states that interference with lymphatic drainage following removal of the axillary lymph nodes is insufficient cause. Although the clinical aspect of the condition is that of a thrombosis, necropsy reveals that all the large veins from the arm are permeable. Infection or cancerous infiltration may induce cicatricial contraction which exerts external pressure on these large veins resulting in this peculiar condition.

Phlebitis-phlegmasia alba dolens occurs in some vessels as a complication of an infected cancer. A rather sudden and deep pain followed by edema is the usual course of events. After an interval of three to four months, the edema is resorbed and the arm or leg regains its former function. As in other types of phlebitis, embolism is always a possible danger. Massive gan-

grene may follow embolism in an artery of an extremity.

The endocarditis of cancer is a local expression of a diffusion of an infectious process. From a practical point of view, this is certainly one of the more important systemic complications of cancer. The endocarditis of cancer is not frequently recognized by cardiologist or cancerologist, who incorrectly consider it as a terminal or coincidental infection. Endocarditis develops frequently in patients having greatly ulcerated cancers of the rectum, uterus or face. The primary endocardial lesion is an ulcer upon which a thrombus develops secondarily. It is a subacute affair and resembles the endocarditis lenta produced by the streptococcus viridans. From this thrombotic lesions, secondary embolic foci occur in liver, kidney, etc., but produce only subacute lesions.

THE KIDNEYS.

At necropsies performed upon individuals who died of cancer, definite evidence of more or less important renal lesions are discovered but clinical examinations upon many of these same patients find inconstant renal dysfunction. Of course, cancer can occur in a person who has had chronic nephritis for years. Nor is the nephritis occurring in a cancerous patient, necessarily dependent on the neoplasm.

The rather common toxic-infectious nephritis is a true complication and part of the secondary infectious syndrome which follows ulceration and infection of the cancer. It sometimes occurs concomitantly with the subacute thrombotic endocarditis, previously mentioned. The glomeruli are dilated and engorged with blood and the capsule is distended with serofibrinous exudate. Between the tubules and in the interstitial spaces are found accumulations of mononuclear and polynuclear cells. There is a relative oliguria—400-800 cc. and never a hematuria. Renal tests inform one about this condition far sooner than physical examination does.

The knowledge of this nephritis is of considerable prognostic importance.

Death from kidney disease is the rule four times out of five in cancer of the uterus. With a few exceptions, this is the usual method of termination for persons having cancer of the bladder or prostate. Renal insufficiency is a frequent cause of death in cases of rectal cancer.

Urinalysis demonstrates that nephritis always precedes cachexia and indeed may be the chief cause of it. One must discard the opinion that cachexia results from the absorption of products from tumor tissue, because of the absence of signs and symptoms of toxemia following acute regression of enormous myelogenous spleens and mediastinal lymphosarcomas after roentgentherapy.

Compressions of the ureter or ureters is not only caused by enormous neoplasms which transform the pelvis into a cancer en bloc (frozen pelvis), but also by small tumors so placed as to obstruct the ureter (uretero-cystic orifice). Sometimes this constitutes the first sign of parametrial invasion of uterine cancer. The consequences are well known, viz., hydronephrosis, pyelitis and uremia. The distention of the kidney pelvis is slowly progressive, due to the persistent function of the glomeruli. The hydro-nephrosis may occur in a kidney that is already the seat of a toxic-infectious nephritis. If cystitis is present, the hydronephrosis may be transformed into a pyelonephritis, which in turn occasionally leads to a perirenal abscess.

SUMMARY.

Most cancerous individuals die from complications rather than from the natural progress of the disease.

By the time a cancer has caused stenosis of a visceral lumen sufficient to evoke symptoms, it is very late in its course.

Ulceration and hemorrhage are critical local events in the history of any cancer.

Infection usually hastens growth of the cancer and handicaps therapeutic measures.

Polypoid tumors of the small intestine occasionally become incorporated in intussusceptions.

The complications of gastric cancer are stenosis, anemia, cachexia, hemorrhage, uremia and hepatic insufficiency.

The hematologic syndromes of cancer are those of either a frequent secondary anemia or a very infrequent pernicious anemia. If the red blood count is fairly high and yet normoblasts occur in some abundance, it may suggest metastasis to the bone marrow.

The obstructive icterus of cancer is distinguished from the icterus of lithiasis by the flexible application of Courvoisier's law and by the fact that the former jaundice is followed usually by fever and disorders of hepatic insufficiency due to resultant infection of the biliary passages.

It is remarkable that most of the cancers of the rectum, uterus, sigmoid colon, cecum and urinary bladder do not provoke ascites frequently, whereas it is very common after metastases from stomach and testis.

The pleura is not as sensitive to neoplastic infiltration as is the peritoneum.

Dyspnea is the first and often the only sign of mediastinal neoplasm, the following types occur—effort dyspnea, dolorous dyspnea and dyspnea in the form of nocturnal asthma.

Stoke's sign is an edema and cyanosis of the neck, face and upper extremities following partial obstruction to venous return through the superior vena cava. It is frequently observed late in the history of a mediastinal tumor.

Lymphedema of the arm following primary or secondary auxiliary tumors, before or after operation is due to infection

or cancerous infiltration with cicatricial contraction, which exerts external pressure on the large veins draining the limb.

The endocarditis of cancer is frequent in patients having greatly ulcerated cancers of the rectum, uterus or face. It is subacute in course and resembles the endocarditis lenta produced by the streptococcus viridans.

Toxic infections nephritis and obstructive urinary lesions are very common complications of cancer. The majority of patients having cancer of the uterus, prostate or urinary bladder, and a large number of those having rectal cancer die from secondary kidney disease.

GLANDULAR FEVER WITH REPORT OF A SMALL EPIDEMIC IN A LOCAL ORPHANAGE.*

I. I. LEMANN, M. D.,†

NEW ORLEANS.

Ten boys ranging in age from eleven to seventeen from Hope Haven, a local orphanage located in the open country directly across the river from New Orleans, were admitted to the wards of Touro Infirmary in the period from June 3 to July 21, 1927. The total population of the orphanage was only sixty-five. The complaints of the patients, the course of their disease, the findings on physical examination and the results of laboratory investigations were so closely parallel in all ten cases as to leave no doubt that we were dealing with an epidemic of some sort. The disease was very mild and none of the boys were very sick. About six of these patients I saw, the other four were seen by my colleagues Drs. C. L. Eshleman and J. C. Cole.

The illness was characterised by a sudden onset, usually with headache. One boy had a chill, two had abdominal pain, two vomited at the onset, one complained of burning eyes, none had sore throat. The fever rose usually to 103° or 104° and in one case as high as 105°. Even the last patient was not very ill at the height of his fever. The fever lasted four or five days and terminated by crisis. In only one case did the fever last more than five days; here it lasted eight days. Aside from the headache there was little discomfort—not even as much malaise as one ordinarily expects with fever to these levels. There was not even the usual anorexia. As soon as the fever was gone the boys were eager to be up.

All the boys were well nourished. The heart and the lungs were normal in all but one case; here it is recorded that a loud systolic murmur was heard. Every boy except the first one admitted showed a definite enlargement of the lymph nodes. It is possible (and probable) that this first boy also had an adenopathy which was overlooked. In the other nine patients the cervical glands were enlarged in 4 cases, the submental in 1 case, the epitrochlears in 6 cases, the axillary in 1 case and the inguinal in 6 cases. The spleen was enlarged in 4 instances. The spleen was found enlarged in a fifth case where the boy was re-admitted a second time a month after his first admission. Reference will be made again to this later on. I noted in four cases a fine, discrete papular rash, like the rose colored spots of typhoid on the chest and abdomen. These spots would fade on pressure, promptly to return. Indeed the occurrence of this rash and the enlargement of the spleen at first aroused the suspicion of typhoid, particularly when it was evident that we were dealing with some epidemic disease. The course of the illness, however, soon made this diagnosis untenable. The blood cultures were all negative. The agglutination test of the blood with *B. typhosus* in dilutions of 1 to

*Read at the meeting of the Orleans Parish Medical Society, April 23, 1928.

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60 were negative. The rash aroused too the suspicion of typhus (or Brill's disease) and of dengue. As to the former, there was no prostration nor any clouding of the sensorium. As to the latter, there were lacking entirely the severe pain of "break bone" fever. The constant adenopathy could not be explained by any of these hypotheses. At the time no diagnosis was set and the histories were recorded as of "fever of unknown origin." Recently I have again reviewed these histories and feel that we are justified in regarding this small epidemic as one of glandular fever.

or identical conditions variously named." Since their report, the Quarterly Cumulative Index shows fourteen articles listed under the title of glandular fever or infectious mononucleosis. Definite clear cut epidemics have been reported in England, on the continent and in this country. The largest of these was by Guthrie and Pessel⁽²⁾ in 1925. They observed an outbreak of three hundred cases in the student body of about five hundred boys ranging in age from thirteen to eighteen in the Lawrenceville School, Lawrenceville, N. J. The next largest epidemic is that reported by

TABLE I.

Case	Mode of Onset	Termination	Max. Temp.	Pulse	Spleen	Lymph Nodes Enlarged	Eruption
1.	Vomiting Fever Headache	5 da. crisis	104.6°	80-125	—	None	+
2.	Vomiting Headache Fever	4 da. crisis	105°	80-110	+	Epitrochlear Inguinal	—
3.	Headache Fever	2 da. crisis	103°	100-105	?	Submaxillary Axillary	—
4.	Headache Pains in abdomen	5 da. crisis	102.6°	80-122	—	Epitrochlear Inguinal	+
5.	Burning of Eyes	8 da. crisis	104°	86-118	+	Epitrochlear Inguinal	—
6.	Headache Fever	4 da. crisis	104.4°	80-115	—	Cervical	—
7.	Headache	3 da. crisis	102.6°	80-112	—	Cervical Inguinal	+
8.	Fever	5 da. crisis	102.6°	95-100	+	Epitrochlear Inguinal	—
9.	Chill	5 da. crisis	104.2°	100-120	—	Inguinal	+
10.	Headache Pains in abdomen	3 da. crisis	103.4°	90-110	—	Epitrochlear Cervical	—
11.	Headache Fever	8 da. crisis	100.2°	80	—	Inguinal Cervical	—
12.	Spells of weakness for 8 Mos.	Irregular Curve	104°	80-125	+	Inguinal Cervical	+

Although it is now forty years since Filatow in 1885 and E. Pfeiffer in 1889 first described a fever characterised by an adenopathy, practically no progress has been made in establishing this as a distinct clinical entity. Baldrige, Rhoner and Hansmann⁽¹⁾ in 1926 report: "There have been more than one hundred and ten articles published on glandular fever and about half as many articles on similar

J. Park West⁽³⁾, 96 cases in a small town in Eastern Ohio. Baldrige, Rhoner and Hansmann⁽¹⁾ saw 32 cases in the first six months of 1925 at Iowa City, Iowa. Besides the definite epidemics varying in size, many sporadic cases have been reported; thus Baldrige and his associates had seen 18 cases scattered from 1914 to 1924 and Longcope⁽⁴⁾ in New York had observed 10 cases from 1909 to 1922.

ETIOLOGY

In spite of well planned investigations such as cultures from the throat, blood, and extirpated glands, hematological studies and histological studies of extirpated glands, no one has been able to discover the cause of the disease. Streptococci, staphylococci, organisms of Vincent's angina, diphtheroid organisms have at times been found and suggested as the etiological factor but no definite basis for the assumption of any of these has been adequately established. Our knowledge of the disease is practically entirely clinical since there is no mortality. A few deaths have been reported but in none of these is it well established that the case by right belongs in the group which we are now discussing.

EPIDEMIOLOGY

I have already indicated the wide distribution of the disease. The present epidemic is as far as I know the first to be reported from this section. Dr. Chaillé Jamison⁽⁵⁾ read a paper in 1923 before the Louisiana State Medical Society on glandular fever but he made no reference to cases seen by him. Evidently children and young adults are more susceptible than older people. The definite epidemics have broken out practically entirely among children and adolescents. Byers⁽⁶⁾ 33 cases ranged in age from thirteen months to twenty-five years. Longcope's 10 cases (non-epidemic) ranged in age from twelve to thirty. In the series of Baldrige, Rhomer and Hansmann, the youngest was six and a half years and the oldest forty. The incubation period is said to be between five and nine days.

SEASONAL DISTRIBUTION.

The time covered by the epidemic reported by Guthrie and Pessel⁽²⁾ was from the latter part of September to the third week in November, 1922. In J. Park West's⁽³⁾ series, 1 case occurred in September, 1 in October, 13 in March, 12 in February, 12 in November, 11 in January, 10 in May, 8 in December and 6 in April,

1896. No cases occurred in June, July and August. Baldrige, Rhoner and Hansmann⁽¹⁾ report that their epidemic began in December, reached its height in March and extended through the first six months of 1925. It will be noted that the present epidemic occurred in the summer, at the very time when West had no cases. It would appear that the disease may occur at any time of the year.

SYMPTOMATOLOGY

In addition to the enlargement of the glands and the fever, the following have been noted in a large percentage of the cases: general malaise, headache, chills, sore throat, enlarged tonsils, enlarged spleen, enlarged liver. In some cases abdominal pain and tenderness have been noted. Longcope observed a macular eruption of small, dull red spots in some of his cases. Baldrige and his associates have compiled a long list of various symptoms and physical observations, some of which perhaps stood in no special relation to the specific disease. Guthrie and Pessel believe that although one hundred and twelve boys were actually admitted to the infirmary, a very much larger number actually had the disease in so mild a form that they were treated as ambulatory patients. Because at a subsequent physical examination of all the boys in the school a surprisingly high incidence of marked general glandular enlargement was found, they believed that there has been over three hundred cases in the school. Others have also referred to the exceedingly mild character of the attacks in other epidemics. This corresponds to our experience here for we believe that the ten patients whom we received in Touro Infirmary by no means represent the total incidence at Hope Haven. Dr. D. D. Warren, who went out to inspect Hope Haven and to look at the other boys during the time we were receiving sick ones at Touro, tells me that other boys, probably as many as fifteen, were sick at this time but in so mild a fashion, that it was not considered neces-

sary to send them in to the hospital. Dr. Warren and I recently inspected fifty-seven of the boys at Hope Haven (April 6, 1928) nine months after the epidemic and found in all very definite enlargement of the lymph nodes. The nodes varied in size from that of a pea to that of the distal phalanx of an adult thumb. Many of the boys had a general adenopathy, the cervical, epitrochlear and inguinal glands being involved; others exhibited enlargement of only one group. Practically all of them had inguinal gland enlargement. Although the epidemic is usually represented by a febrile attack of from two to five days, there have been cases in which the glands re-enlarge and become tender at variable periods after the initial attack. "Such recurrences are often associated with some fever and many of the symptoms of the original infection. We have followed one patient through four such attacks in the last three years. The spleen is usually enlarged only a few days but we have one patient in whom the spleen was much enlarged at the onset and has remained palpable for seven years without known cause."⁽³⁾ Two of our patients from Hope Haven were re-admitted a few weeks after their first admission. E. J., was admitted June 13, 1927, on the first day of his illness and had a crisis on the fourth day, his temperature having risen to 105°. His spleen was palpable and he had enlarged epitrochlear and inguinal glands. The tonsils were greatly enlarged. He was re-admitted September 2, with the story that he had felt perfectly well until that morning when he awoke with a severe frontal headache. His tonsils had been removed six weeks before, that is to say July 23, 1927. On this second admission the temperature rose to 103° and fell by crisis after two days. The spleen was palpable. The submental and axillary glands were enlarged.

C. O. was admitted July 29, 1927 with headache, fever and abdominal pain. The illness had begun one week before with

headache and fever. In the hospital his temperature did not rise over 100.2° and fell to normal the day after his admission. His cervical and inguinal glands were enlarged. The spleen was not palpable. His tonsils had been removed three weeks previously. He was re-admitted on August 29, 1927, with a fever of 100° which ran an irregular course, rising as high as 104.2° on September 2, 1927. His spleen was large and hard. He had marked enlargement of the cervical and inguinal glands. On September 5 when his temperature was 100.8°, having previously fallen to normal, quinine was begun and he received seventy grains from 8 P. M. September 5 to 8 P. M. September 8. The temperature did not rise until September 10. From the eleventh to the thirteenth it rose to 99.4°. There is, of course, a question as to whether the quinine caused a decline of the temperature. No plasmodia had been found in the blood.

HEMATOLOGY

Guthrie and Pessel⁽²⁾ found early in the disease a moderate polymorphonuclear leukocytosis and later counts showed in many instances normal or slightly subnormal total count with an increase in the lymphocytes. Baldrige and his associates⁽¹⁾ found a total leukocyte count usually above normal at the onset and below normal in the convalescence: "A polymorphonuclear leukocytosis may occur at the onset, especially in cases with marked febrile reactions. Sometime during the course the blood shows a rather marked increase in mononuclear cells." Longcope⁽⁴⁾ found during the first week of the disease: "An absolute and relative increase in the mononuclear cells of the blood with a slight but distinct decrease in the total number of granular cells. Total leukocyte count at the onset from 9,800 to 26,200. This high leukocyte count lasted only a few days. There was a steady increase in the non-granular mononuclear cells definitely from the seventh day, reaching its height usually about the tenth or fourteenth day.

Following this there with a decrease in the total leukocyte count was a gradual reduction in the mononuclear cells". Many observers have called attention to the abnormal character of the mononuclear cells occurring sometime during the course of the disease. Guthrie, however, comments that "In no instance was a blood picture encountered that was nearly so striking, particularly in regard to the increase of immature lymphocytic cells, as that presented in the case we have seen of "infectious mononucleosis" in young adults. It is entirely probable that such conditions were present but escaped recognition as we did not make daily examinations of the blood over a long period in any of the patients." This unfortunately was also the case with us. An average of only one blood count was made on each patient in our series. Reference to the accompanying table will show that most of the patients had normal or subnormal leukocyte counts. There are three counts of 4,000 or less and only four above 6,000. The highest was 12,000. This variation may have been due to the fact that

some of the counts were made early in the attack, others relatively later. I have indicated on the chart the day on which the counts were made. It will be noted that a few of them showed abnormally large percentage of mononuclear cells. No detailed study was made of these cells.

RELATION OF GLANDULAR FEVER TO INFECTIOUS

MONONUCLEOSIS

Guthrie says: "If as has been suggested, infectious mononucleosis represents merely the picture produced by sporadic incidences of glandular fever in young adults, it may be that the effect on the blood is actually somewhat different from that produced by milder attacks occurring in epidemic form among young people." Baldridge and his associates also comment on "the fact that the percentage of mononuclear cells averages much higher in sporadic cases than in epidemic cases." I, too, have the same impression. Recently, there came under my observation a young man, aged 25, a resident of New York who while on a visit to relatives here developed at the end of last December an irregular fever which lasted more than a month. At no time was he very sick. He had no complaint except occipital headache and a general malaise when the fever was present. The physical examination revealed nothing beyond a slight pharyngitis and an enlargement of the cervical glands. One at the angle of the jaw was still the size of a small marble and tender one month after the onset. The left submental gland was also still palpable and tender. The spleen was never enlarged, though repeatedly searched for. The blood pictures were, as follows: red blood cells 6,170,000; white blood cells 8,100; polymorphonuclears 63; large mononuclears $6\frac{2}{3}$; small mononuclears 25; eosinophils 5; and basophils $1\frac{1}{3}$ per cent.

1-25-28—Red blood cells 5,345,000; white blood cells 8,250; polymorphonuclears 20; large mononuclears 5; small mononuclears 63 and eosinophils 2 per cent.

2-11-28—Red blood cells 5,580,000; white blood cells 8,100; polymorphonuclears

TABLE II.
BLOOD PICTURE

Case	Leukocytes	Neutrophils Per Cent	Small Mononuclears Per Cent	Day
1.	3,500	60	33	3
2.	8,000	60	27	2
3.				
4.	6,500	59	26	5
5.	12,000	85	13	5
6.	5,000	44	52	4
7.	3,600	60	40	3
8.	4,000	26	54	6
9.	5,500	70	28	3
10.	9,500	74	20	1
11.	8,000	50	46	9
12.	5,100	55	43	4

57 1/3; large mononuclears 4; small mononuclears 36 and eosinophils 3 2/3 per cent.

I am inclined to look upon this as a sporadic case and call attention to the transient mononucleosis. If there is really a difference such as indicated by Guthrie and Baldrige and now by myself, one may ask whether actually the epidemic and the sporadic cases are examples of the same disease. I am also impressed by the constant reference by reporters to the occurrence of sore throat and even of membranous angina. In view of the leukopenia and the mononucleosis, I am led to ask what is the relation between such cases and agranulocytic angina and what the points of differential diagnosis between the two? True, agranulocytic angina is nearly always fatal, glandular fever (infectious mononucleosis) never fatal. I have recently, however, seen an old woman, age 70, recover from agranulocytic angina. In both conditions the etiological factor is unknown. Both represent unusual and abnormal reactions of the reticulo-endothelial system to infections. Is the difference of this reaction merely one of degree or intensity? In this connection, too, there comes to mind the mononucleosis which has been noted in various conditions not apparently related to epidemic glandular fever or even to the sporadic glandular cases. These would seem to represent abnormal reticulo-endothelial reaction to varying invading organisms and not to represent a true distinct entity. Such a case was that of a young man, aged 21, who after a carbuncle of the back developed a septicemia which in turn was followed in his convalescence by an enlargement of the spleen and a mononucleosis. At the time of his carbuncle and even in his convalescence he is reported to have had a leukocyte count of 13,000 with 82 per cent of polymorphonuclears. Following this he had a little redness and slight edema of his throat. A little later his spleen was found enlarged to two fingers below the costal margin. Then the leukocyte count was 11,600 with 81 per

cent of (very) large mononuclears, 4 1/2 per cent of small mononuclears, 13 per cent of polymorphonuclears and 1 per cent of eosinophiles. The count in two weeks shifted to 11,200 leukocytes, 68 per cent of small lymphocytes, 5 1/3 per cent of large lymphocytes, 22 2/3 per cent of polymorphonuclears and 4 per cent of eosinophils. Gradually the lymphocytosis diminished and with this there was a surprising eosinophilia to as high as 11 per cent. This eosinophilia in turn gradually disappeared. After two months the blood picture was almost normal and two months later it was quite normal.

SUMMARY

Report is made of a small epidemic of glandular fever. Ten cases were observed but there were probably twenty-five or thirty boys ill out of a total boy population of sixty-five. The relation is discussed of epidemic glandular fever to sporadic cases with glandular enlargement and mononucleosis, to agranulocytic angina and to mononucleosis occurring in varying infections.

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DISCUSSION

Dr. D. D. Warren (New Orleans): There is no doubt in my mind but that this was a real epidemic. I was associated with this institution when the epidemic broke out. In going over every boy who came in we would make an examination of the glands and heart. So many had a small amount of fever and adenopathy that I tried to admit them into the Hospital, but soon realized I would be unable to do so. I therefore opened a room out at Hope Haven, isolated it and put the remainder of the boys there. When I told Dr. Lemann that the number taken care of over there was fifteen, I was being conservative. I really believe that a great many more than one-half of these boys came down with this glandular fever. I am not going to call it infectious mononucleosis.

In looking up glandular fever I find "glandular fever or infectious mononucleosis." Something is wrong somewhere. In the glandular fever epidemic reports of Guthrie, Longcope, and others their epidemics did not show the typical blood picture of infectious mononucleosis. If this is the same disease, glandular fever is the better term.

It is interesting to note that while these boys were sick, none of the attendants came down with it. As I remember there were about ten attendants.

Also, at the beginning of the epidemic, it just happened that every boy who was taken sick was working in the dairy. I at once thought of the possibility that it was some disease carried by cows and notified the State Board of Health. We did not get any definite report as to what they found. I believe they thought it was cow pox, due to two infected cows which they found.

I wish I had had the opportunity to examine these boys before this epidemic. We know nothing of the adenopathy they showed before then. I know, as a rule, you do find the lymph nodes enlarged. This was different. These boys did not have little palpable nodes. It was not unusual to find an epitrochlear node as large as the end of the middle finger; inguinal nodes larger than the end of the thumb; there was real adenopathy.

It is also interesting to note that the first case, the only case that showed any gastro-intestinal symptoms, came on suddenly while the boy was driving the cows to pasture. It began with pain in the abdomen; he was brought immediately into Touro. He ran the same course as the others.

A Wassermann was made in every one of these cases. As to the heart case Dr. Lemann mentioned: I found no heart lesions in any of these boys as they were admitted.

I have under observation now another group of boys at the Waif's Home, of the same age as the boys at Hope Haven. While I do not wish these boys any harm, if they have an epidemic, I will study the disease more thoroughly.

Dr. L. R. DeBuys (New Orleans): We should all feel indebted to Dr. Lemann for his interesting and thorough survey of the epidemic that he has just reported. The term glandular fever is used synonymously with infectious mononucleosis, also with acute infectious adenitis. The pathology of the disease is not definitely known because few of the cases require excision of the gland. In those cases, however, in which the gland does go to suppuration the ordinary pyo-

genic organisms are found. The epidemics of glandular fever are usually found coincidentally with other epidemics, as for example, influenza.

In the younger individuals the severer involvements of the glands are found. The only cases that I have seen where suppuration has occurred have been in these younger individuals. In Pfeiffer's original description the cases were mostly those of infants. The literature, however, also contains epidemic in young adults. In those cases that go to suppuration no particular specific offending organism has been found. An interesting observation in connection with this disease is that the involvement of the gland is out of all proportion to the amount of infection in the area which these glands are supposed to filter. The glands most frequently involved are those of the neck.

The atrium of infection is believed to be the nasopharynx. It is also believed that perhaps the tonsils are the point of entrance for the infection. Dr. Lemann in his series has reported a patient in whom the tonsils had already been removed. I have also noted such instances, and one case in a child of 7 years had one of the most marked attacks which occurred after the tonsils had been removed.

The blood pictures in this series are interesting. Usually the blood picture described in acute glandular fever shows not only a lymphocytosis but a leukocytosis. Undoubtedly this disease offers a field for future investigation.

In closing I want to make one statement with regard to the treatment. In those cases where the gland tends to persist in size or tends to increase rather than to diminish in size nothing will give more spectacular relief than the use of the roentgen-ray. I want to emphasize the deleterious effect of the large dosage of the roentgen-ray. In a series of 10 cases, 3 cases were treated by one radiologist with large doses and 2 of these 3 went to suppuration, and the third had a prolonged convalescence. The dose given was from two-thirds to 1 skin unit. In the other 7 cases one of them went to suppuration. They received one-third of an erythema dose, and most of them had only one treatment. One-third of an erythema dose is therefore quite sufficient and most satisfactory and if it should be necessary to repeat the dose it may be done with further improvement.

Dr. E. D. Fenner (New Orleans): I would like to ask one question—whether these glands were tender or painful, or not?

Inasmuch as the symptoms do not seem to be very definite, the blood picture is not actually

characteristic, the disease is mild and self-limited, and as children are likely to have enlarged glands, I hope we will not have a universal outbreak of glandular fever this year.

Looking around me, I seem to see cases of glandular fever incubating all over the room. I do not think anyone who has listened to Dr. Lemann's paper could doubt that these were in fact cases of glandular fever, and one must be a little envious of the careful and accurate records made of these patients. There occurs to my mind a nonsense verse, by Carolyn Wells, which may not be entirely inappropos to the too rash diagnosis of sporadic cases. It runs:

"All children know, of course, the goose.
See how they gather round the goose-girl's knee,
While she reads them by the hour
From the works of Schoppenhauer.
But do they understand what 'tis she's talking
'bout?
Certainly not! Neither do they, neither does she,
Nor, for that matter, did he!"

Dr. I. I. Lemann (closing): I think that patients with suppurating glands ought to be considered as not belonging to this group, which has been called by some infectious mononucleosis.

As to the tonsils being a portal of entry for the infection, as suggested: Two of our patients had tonsillectomies done, one before the first admission and the other between the first and second admissions. The tonsils were enlarged. This does not necessarily mean, however, that the tonsils were responsible for the enlargement of the cervical glands. Their enlargement might simply be part of the picture of lymph tissue involvement.

As to the suggestion of both Drs. Jamison and DeBuys relative to an outbreak following epidemic of influenza. Baldrige quotes Jamison in a recent article but could not find any evidence to bear out Jamison's statement as to the relation of influenza to glandular fever.

To answer Dr. Fenner's question: The glands were not tender nor painful. As to his implication that perhaps the essayist did not know what he was talking about, I plead guilty. We knew we were dealing with an epidemic and knew it was marked. We did not have a caption to give it except fever of unknown origin. We were impressed by the universal adenitis.

I sympathize with the plea of Dr. Fenner that we do not proceed to find a general epidemic of glandular fever. Please understand that we were dealing with a definite epidemic in a circumscribed portion of the population.

JAUNDICE OCCURRING IN UNTREATED SYPHILIS.*

J. HOLMES SMITH, JR., M. D.,

NEW ORLEANS.

It is the purpose of this paper to present several cases seen by me during the past four or five years in whom icterus was a prominent symptom and apparently the result of syphilitic involvement of the liver.

Considering the volumes which have been written, in recent years, upon the subject of jaundice, comparatively little attention seems to have been paid to any relationship which may obtain between an existing icterus and syphilis as the etiologic agent. A possible explanation for this may lie in the fact that, while syphilis is a very common and widespread disease, obvious jaundice occurring during the course of otherwise readily demonstrable syphilitic manifestations, is comparatively rare.

In Medical Clinic No. 15, at the New Orleans Charity Hospital, a clinic devoted to colored women and having a very large attendance, the percentage of new patients showing a strongly positive Wassermann is some times as high as 30 per cent, and we believe, in addition to this, that at least probably 40 per cent have syphilis as a background for their many complaints. Yet the number of jaundice cases from all causes is quite small. Of the cases showing jaundice, in the absence of positive Wassermann reaction, we at times assume syphilis to be the underlying cause and treat accordingly, but since jaundice frequently tends to be a self-limited condition, one must be quite guarded in making such assumptions.

Considering the great prevalence of syphilitic infections, particularly in the colored race, it does seem strange that syphilitic involvement of the liver, and particularly syphilitic jaundice are not more frequently diagnosed.

*Read before Orleans Parish Medical Society, March 12, 1928.

Concerning syphilitic liver disease, Osler⁽¹⁾ says: "It is difficult to determine the frequency with which the liver is involved. Once attention has been called to the subject and the special features recognized, the cases are found to be not uncommon; in the records at the Johns Hopkins Hospital during a period of eighteen years there were 30 cases diagnosed as such, while in the post-mortem room among 2500 autopsies there were 40 cases showing gummata or syphilitic cicatrices and 15 additional cases regarded as syphilitic cirrhosis." How different are the statistics of Warthin,⁽²⁾ who has developed newer methods and criteria for the recognition of syphilitic infection. He says "out of 750 autopsies at Ann Arbor there was evidence of syphilis in 300 cases or 40 per cent, and the liver showed chronic passive congestion and atrophy (brown atrophy chiefly), in every case." The syphilitic lesions varied from slight plasma cell infiltration to brown atrophy, gummata, and cirrhosis of various types.

If Warthin's figures are correct and there is greater or less liver damage in every syphilitic, it does seem strange that there is not more obvious evidence of it. It is not unlikely that the milder grades of involvement are being overlooked.

Most references to syphilitic jaundice are found in the foreign literature, but several articles have appeared in American journals.

In 1919, Scott and Pearson⁽³⁾ reported two cases occurring during the secondary stage of the disease and six occurring within three weeks after inauguration of antisiphilitic treatment and attributed by them to a Herxheimer reaction.

More recently, an article by N. Tobias⁽⁴⁾ has appeared in the American Journal of Syphilis.

It has been my fortune to observe five cases of jaundice in whom there seems little doubt that the etiologic factor has been the pale spirochete. Of these, four

were in colored women and one in a young Mexican woman. In four the Wassermann reaction was strongly positive, and in one, negative; two of the cases were observed during the secondary stage of the disease and the other three during a later period. The cases, briefly, are as follows:

*Case 1.** E. P., colored girl, aged 15 years, first came to the clinic on April 6, 1925, complaining of yellow eyes and skin and dark urine, of two weeks duration. At this time she was looked upon as a case of catarrhal jaundice, was given sodium phosphate and told to return in a week. Upon her return, one week later, the jaundice had become more intense and was pronounced in the sclerae, skin and soft palate; there was a macular eruption over skin of trunk and extremities; the epitrochlear lymphatics were quite prominent and the Wassermann reaction was strongly positive. At this time the urine contained a large amount of bile and the van den Berg reaction for retained bile pigments was: Direct: prompt; indirect, 21 units, suggesting both an obstructive and a toxic or infective jaundice. The blood picture showed nothing of note except a slight increase in the total leukocytes to 10,250. The patient was given deep muscular injections of potassium bismuth tartrate and bismuth salicylate. Her condition rapidly improved and on May 20 the van den Berg test showed, Direct 4.5 units (as against 17.5), and indirect 1.6 units. On July 1 she appeared clinically well and stopped coming to the clinic.

Before reporting the succeeding cases it might, perhaps, be well to make a few brief remarks regarding the treatment of these cases and the tests for bile pigments.

Except in one case where mercurial rubs were employed in the early stage, all of these patients were treated by injections of bismuth preparations deep into the gluteal muscles. At first, potassium bismuth tartrate was used but owing to the amount of local irritation which this preparation seemed to cause bismuth salicylate was substituted. In my opinion the arsenical preparations should not be employed where there is such evidence of liver damage.

We have employed the van den Bergh test for retained bile pigments, routinely, because it is supposed not only to be a measure of the pigment retention but also

to indicate the probable location of the trouble. The icteric index, while measuring the amount of retained bile pigments in the blood, serves no other purpose.

No attempt has been made in these cases to employ any of the dye tests of liver function. In this connection, McVicar and Fitts,⁽⁵⁾ of the Mayo Clinic, recently said "functional tests of the liver or pancreas have not yet attained diagnostic value in cases of jaundice."

Case 2. Mrs. C. I., white, Mexican, aged 21 years, first reported at the clinic Feb. 13, 1928, complaining as follows: Two weeks previously she began having a dull ache all over her body and one week ago noticed eyes becoming yellow. For a week she had been vomiting about two hours after meals. No pain before or after food. Urine highly colored. Examination showed the sclerae to be markedly yellow; post cervical and epitrochlear lymphatics were easily felt; over skin of thorax, abdomen and extremities there was a marked macular eruption and the Wassermann reaction was strongly positive. The urine at this time contained bile and some albumin and casts. The van den Bergh test showed: Direct reaction: delayed. Indirect, 30 units, indicating a toxic or infective hepatitis, but no obstructive lesion. She was placed upon bismuth therapy and has been responding very well.

Case 3. J. P., colored woman, aged 50 years, first seen in the clinic Dec. 1, 1924. At that time her complaint was pain, radiating from the middle of the sternum to the right costal margin and right axilla, accompanied by "dumb chills" and followed by fever. Duration three months. In addition to this she has had some jaundice for over a year and has lost about 30 pounds in weight. At times she has headache and dizzy spells. Her appetite was good, but she vomited all food taken. This would account for the loss in weight.

Examination showed a decided icteric tint to the sclerae (this was before we were using the van den Bergh test and we have no measurements of bile pigments in her blood). Otherwise, there was little of note in the physical examination except: B.P. 160/110, and slight rigidity of the upper right rectus muscle. The urine showed the presence of bile. The Wassermann reaction was negative on Dec. 1, 1924, but strongly positive on Dec. 10, 1924. The blood picture showed a secondary anemia.

This patient was given several courses of mercurial inunctions with iodid of potash and by February 23, 1925, she was markedly improved and all jaundice had disappeared. At a later date she

was given bismuth salicylate and ultimately came to feel better than she had in years.

Case 4. M. B., colored girl, aged 18 years, first seen April 20, 1927. At that time her complaint was jaundice of ten days duration which was increasing in intensity. She also complained of a painful swelling on the inner side of left thigh and a less painful one on the right thigh. These "swellings" were of the same duration as the jaundice. The history was otherwise unimportant. Examination showed pronounced jaundice of sclerae, soft palate and skin. Left epitrochlear only palpable lymph node. Nothing of note in heart or lungs. In the abdomen, there was some rigidity of the rectus muscles and satisfactory examination could not be made. There were no areas of tenderness. The liver and spleen could not be felt. On the inner side of left thigh was a painful, inflamed nodule about size of a walnut and a similar one, though painless, on the outer side of the right thigh. Wassermann reaction was strongly positive. Urine contained no bile. Van den Bergh test showed: Direct, delayed; indirect, 2.5 units, indicating a toxic or infective process in the liver.

She was given injections of bismuth salicylate twice weekly and by May 16 there was only a trace of icterus and the nodules on the thighs were about gone. Patient failed to return for further treatment.

*Case 5.** M. B., colored woman, aged 35 years, came to the clinic June 8, 1925, with the following history: For about one year she had been feeling sick all over; had pains and aches over whole body which were worse at night; had frequent nausea but no vomiting; was constipated. Recently, she had noticed her eyes getting yellow. A history of two miscarriages was elicited with no other pregnancy. Examination showed a fairly well developed woman who appeared to have lost weight. There was a decided icteric tint to the sclerae and soft palate. About the centre of the soft palate was a small perforation such as is frequently seen resulting from syphilitic infection. No adenopathies were noted. There was nothing particular in chest except an accelerated heart rate. In the abdomen, the liver edge could be felt a short distance below the costal margin. There was some tenderness in the epigastrium. The spleen could not be felt. The Wassermann reaction was negative on three occasions. Urine contained bile with some albumin and hyaline casts. Van den Bergh reaction showed: Direct, biphasic (prompt and delayed); indirect, 15 units, indicating a toxic or infectious condition causing both dysfunction of the liver cells and some obstruction. The blood picture was unimportant. This patient was placed upon bismuth therapy and by July 22 was clinically well, with no evidence of jaundice. She stopped

coming to the clinic and we were unable to secure another van den Bergh test.

This patient is being included in this series because I believe the evidence and results of treatment are proof of the syphilitic origin of her trouble, also, because she represents a type of case seen more frequently than the other members of this series. In this patient, while the Wassermann was negative, the other evidence was almost conclusive.

It seems to me that any discussion of these cases should be preceded by a brief reference to the modern conception of jaundice and the van den Bergh reaction.

McNee⁽⁶⁾ has given, what is probably, the clearest, most concise and most easily understandable picture of jaundice, which has appeared in recent years. His conclusions are largely based upon recent studies concerning the relationship existing between the parenchymal (polygonal) cells of the liver and the reticulo-endothelial system. In his study the van den Bergh test has played a prominent role.

It has been found that jaundice is of two grades, first, that in which there is retention of bile pigments in the blood, in excess of normal, but not sufficient to be detected in the skin or sclerotics; this is known as latent jaundice; secondly, that in which the jaundice is visible to the examining eyes. This excess of bile pigments is easily determined by the icteric index, but, theoretically at least, the van den Bergh test is superior because it not only records the amount of bile pigment present in the blood but as mentioned before is also a guide as to the probable location of the pathologic process.

Using the van den Bergh test, it has been noted that bile pigments which have passed through the liver cells and been reabsorbed into the blood, as occurs in obstructive jaundice, will give a reaction very different from bile pigments which have not passed through the parenchymal liver cells. On this evidence two sets of reactions have been evolved for the van den Bergh test; one, the so-called direct reaction, which when present indicates an obstructive condition somewhere distal to

the liver cells, and the other, the so-called indirect reaction, which when positive indicates either damage to the liver cells (of a toxic or infectious nature) or an hemolytic process. On this hypothesis, the classification of jaundice into, first, obstructive hepatic; second, toxic and infective; third, hemolytic, gives us something which we can understand and which enables us to more correctly class our cases.

Applying these ideas to the above cases we find that all give a positive reaction by the indirect method, indicating some interference with the function of the liver cells. When we consider that the pathological process is most apt to involve the parenchymal cells, it is rather to be expected that this reaction should be obtained. In addition, several cases gave a prompt direct reaction, indicating that there was some obstructive condition distal to the liver cells.

It might be well to call attention to the fact that there must be a rather widespread involvement of the liver cells (in cases of toxic and infectious jaundice) in order to cause considerable retention of bile pigments. Localized conditions, such as gummata, are not apt to cause any retention of pigments and the van den Bergh and icteric index tests would be negative.

Quite recently two cases of arsphenamin jaundice have come under my observation. It seems to me that if the administration of salvarsan were preceded by one or other of these tests for bile pigments (for such purposes the icteric index would be the simplest) we might be able to detect evidence of damage to the liver cells, avoid the use of salvarsan, at least until evidence of trouble had cleared up and so prevent such cases of jaundice.

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DISCUSSION.

Dr. J. H. Musser (New Orleans): In diagnosing jaundice in liver disease it might be well to put down the four great causes of jaundice:

1. Acute Yellow Atrophy.
2. Diffuse Interstitial Hepatitis.
3. Kinking of the Ducts or Obstruction of the Ducts.
4. Acute Parenchymatous Hepatitis.

Type 1 is extremely rare; in all I have seen but three cases. Type 2 gives us our syphilitic cirrhosis, a relatively frequent disease (about 47 per cent). Type 3 is due to obstruction of the ducts resulting in interference with the flow of bile; this may be caused by kinking, pressure, stone, fibrosis, or new growth. In Type 4 jaundice occurs early in the disease and there are various explanations for it.

Dr. Smith has laid a great deal of stress on the importance of keeping away from arsphenamine in the treatment of these patients. His paper does not deal with the jaundice, but calls attention to the danger of giving the drug. This Hexheimer reaction occurs more frequently with syphilitic hepatitis than almost any other condition. We also get in the treatment of this condition sometimes a paradoxical cure in which the patient has a moderate degree of ascites, but in which, despite the fact that the Wasserman is improving, go on with rapidity. I am very glad Dr. Smith called attention to this phenomena in jaundice and syphilis. I do not believe, however, it is quite as rare as he says. It is my impression that it is a bit more frequent.

There is one difficulty, it is a very little difficulty, in the differential diagnosis of these conditions and that is the question of some other condition causing the jaundice in an individual

with syphilis. It is not nearly as great a difficulty as it used to be on account of the routine use of the Wassermann reaction. In the old days I know of four or five cases where the patient was operated on for cholecystitis, gall-stones and such conditions and it turned out that the trouble was not with the gall-bladder but a syphilitic hepatitis. Given a person with a positive Wassermann in the present day we would suspect the possibility of syphilitic disease causing jaundice. It must not be forgotten that an acute intercurrent disease, and not syphilitic hepatitis, may be the cause of the jaundice. I remember a case which impressed me very much. The patient had an acute inflammatory lesion of the abdomen, generalized pain, nausea, and vomiting, but she was refused operation because she had syphilitic cirrhosis. She died of a ruptured gall-bladder. Of course, the Wassermann reaction was positive. The same thing applies to acute infectious jaundice. There are many cases of jaundice supposed to be acute hepatitis which nevertheless, as in this case, may be unrelated to the syphilitic lesion.

Dr. F. M. Johns (New Orleans): I have been very much interested in Dr. Smith's remarks on the van den Bergh reaction. We realize the superiority of this test in checking cases of hepatitis and I really believe that it could be put to a more generalized use. It should be correlated with the urine test for biliverdin. It has occurred to me that in several cases I was able to detect bile pigment in the urine before the indirect van den Bergh could be demonstrated. With an indirect van den Bergh reaction of 24 to 26 units, which would indicate an extensive parenchymatous degeneration of the liver, you will always be able to demonstrate biliverdin in the urine with Schlesinger's test which is very easy to perform and which I would recommend in those instances in which the more complicated blood test is not feasible.

Dr. Abe Mattes (New Orleans): In the last five or six years I have had occasion to see in the clinic at Charity Hospital syphilis in all its phases, including jaundice. We had six or seven cases of jaundice that were not given bismuth therapy but were subjected to routine salvarsan administration. There were no tests made, as described by the author and though salvarsan may be contraindicated in these cases, there was nothing of note in this series, for no complications arose.

I regret not knowing the relationship between toxic hepatitis and the damage that salvarsan may do, but as there was no apparent harm resulting from the measures that are employed in early secondary syphilis, I am grateful.

Dr. J. Holmes Smith, Jr. (closing): Probably Dr. Musser misunderstood me about the frequency

of jaundice in syphilis. What I stressed was the fact that I found only five cases of jaundice in the skin that I was willing to accept as due to syphilis. However, there are a number of cases coming in with obvious jaundice. We treat them accordingly, but have no proof that the jaundice is due to syphilis. Many come in, receive no treatment, and get well.

With regard to jaundice and the Herxheimer's reaction, recently in our clinic we have had three or four cases come back from salvarsan clinic with very pronounced jaundice. Only a week ago a patient reported to the clinic, intensely jaundiced, who had received two doses of the drug and had to go to bed for a month before she could come to the clinic. We try to run an icteric index on patients with positive Wassermanns. We are using the van den Bergh test on account of its supposed value to give us an idea as to whether the jaundice is due to obstruction, to a toxic condition affecting the liver cells, or whether it is hemolytic in origin.

With regard to Dr. Mattes' remarks, I have seen cases in the ward with positive Wassermanns given salvarsan and suffering no apparent ill effects, but knowing the effect of salvarsan on the liver, I think it wise to give bismuth and later on, as the condition improves, possibly the salvarsan would be in order.

MODERN TREATMENT OF GONORRHEA.*

H. W. E. WALTHER, M. D.,

NEW ORLEANS.

It is a source of wonderment to many urologists that so many members of the medical profession still adopt a most indifferent attitude towards the subject of gonorrhea. In some localities the physicians openly announce that they do not treat cases of Neisserian infection. In far too many instances, where physicians do administer treatment for this infection, it is carried out in so haphazard a manner as to be of little avail. Just where to place the blame is a difficult matter. Whether the physician was trained improperly while at college; whether the text-books confuse him rather than elucidate a rational therapeutic scheme; or, whether the urologists

themselves, in their enthusiasm to bring before their confreres the more spectacular phases of their surgical progress, have failed in their duty of properly keeping the profession abreast of the time—this is a matter for some one better qualified than myself to explain. However, I cannot but feel that the urologist is to blame for much of the misunderstandings within our professional ranks as regards the status of gonorrheal therapy as practiced today. It shall be my purpose to clarify, as best I can, the situation even if we must limit our discussion to the bare essentials.

Before entering upon the subject of treatment I trust you will indulge me a few moments while I recall to your minds a few facts upheld by statistics gathered from sources the reliability of which cannot be questioned. In the first place venereal diseases generally are not on the decrease. There is to be found today just as much, if not more, gonorrhea among men, women and children as was observed twenty-five years ago. This in spite of the fact that sex hygiene is today to be found in the school curriculum of every child in the land. Much propaganda in the form of moving pictures, stage plays, lectures, books, posters, and the like, have for years been directing the attention of the youth of the country to the ravages that follow in the wake of the venereal peril. And still fresh cases of gonorrheal infection daily knock at our office doors for help. Then viewing the problem from an economic standpoint the time lost by the wage-earner infected with gonorrhea, not only as measured in dollars lost to his needy family, but also as applies to the material loss of his services to his employer and the disruption such illness causes to his organization, mounts yearly into stupendous figures. Surely the treatment of gonorrhea should vitally interest all of the members of our calling. Let us awaken to the situation existing today. The age of jazz is in no wise conducive to better morals. We must, therefore, study seriously how more effectively to combat this disease in its

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early stages, in both sexes, so that a minimum number of complications will be observed. When complications intervene we must be capable of recognizing them promptly so that efficient treatment can be summarily instituted.

To diagnose accurately gonorrhea we must employ the microscope. I would scarce have the courage to mention this point before such an audience were it not for the fact that ever so often where the clinical evidence of a discharge was accepted by certain physicians as sufficient proof of gonorrhea, valuable time was lost in arresting the ravages of an urethral chancre. A sterile urethral smear should make one suspicious therefore of urethral syphilis and careful palpation of the urethra, possibly an endoscopic study, observing for secondary manifestations, and a blood Wassermann should be employed in aiding to clear up the diagnosis. So much for the male.

In women the term leucorrhea has been handed down to us from time immemorial with all the dignity accompanying a clinical entity. Yet today most of us should realize that so-called leucorrhea is but a symptom, not a disease. The time-honored vaginal douche therefore is about as valuable in the treatment of gonorrhea of women as is the methylene blue pill in men.

The first principal we must accept, if we are to treat our cases of gonorrhea along the lines of modern urologic teaching, is that the infection perpetuates itself by gaining lodgment in certain gland structures. Our therapy is therefore directed at eradicating these foci of infection. In the male the paraurethral glands, the periurethral glands, Cowper's glands, the prostate and the seminal vesicles deserve special consideration. In the female the vulvo-vaginal or Bartholin glands, Skene's glands and the cervical glands demand particular attention.

Any number of concurrent factors may be met with in the treatment of gonorrhea which, when ignored or allowed to go unrecognized, may add materially to the chronicity of a given case. I refer particularly to phimosis, balanitis, venereal warts, urethral caruncle, pin-point urethral meatus and stricture. At one time the teaching was to treat the infection first and then attend to these other coexistent factors later. I have never understood the rationale of such reasoning. We attend to these matters first. It saves time and much worry. Where a foreskin is so tight that the urethral meatus cannot be easily exposed, circumcision is done at once. Only in this way can balanitis be promptly arrested. Venereal warts or urethral caruncles are promptly destroyed with the high frequency spark. Meatotomy is done at once where the meatus is found stenosed. Strictures must be dilated in order to further urethral drainage; naturally I refer here to strictures of the anterior urethra mainly as it is constrictions of this type that hinder any form of therapy directed at controlling acute infections of this area.

TREATMENT OF THE MALE.

Urethritis. More misleading statements are made by the manufacturers of drugs that are supposed to be specifics for gonorrhea than probably can be observed of any other group of remedies. Hardly a week goes by but we receive through the mails announcements that at last something wonderful has been discovered that will promptly cure infections of the diplococcus of Neisser. Few of us today are fooled by rash claims. All of us hope to see the day when we will have a true specific here. So far, however, it has not come to hand. Within twelve hours after exposure, the organisms begin their siege by burrowing into the many follicles that stud the urethral lumen throughout its length and soon are safely hidden away beneath a barrier difficult for any agent to penetrate. In rare instances we observe cases who report

within the first twelve or twenty-four hours after noting a discharge and here *abortive treatment* with a single injection of 2 per cent silver nitrate solution following a 1 per cent cocain local anesthetization will frequently effect a cure. But these cases make up a small percentage of all gonorrheas seen, probably not more than 1 per cent. The druggist sees most of these patients first. Later the physician. The antiseptic dyes, one of the few good things accruing from the World War, unquestionable are far superior to the older protein silver preparations. The penetrating quality of the dyes, whereas not fulfilling perfectly our requisites of what an ideal gonococcicide should be, commends itself to our favorable consideration. We should employ them intensively at the present time. One-quarter per cent pyridium solution, mercurochrome in 0.5 per cent strength and neutral acriflavine in 1:2000 dilutions should be used alternately. Bacteria of any strain ultimately acquire a certain degree of tolerance against any one given drug. Therefore by using one dye solution on one day and switching to another the next maintains better the therapeutic efficiency of each drug. It is imperative that fresh solutions be made up daily. Old solutions not only lose in potency by being kept indefinitely on the shelf, but they are also found to be far more irritating than freshly prepared solutions.

The quest for a dependable internal urinary antiseptic has proceeded uninteruptedly through the years. Up until the introduction of pyridium I personally could not enthuse over any of them. During the past twelve months my experiences with administering pyridium by mouth to cases of gonorrhea has forced me to modify my opinion. This colloidal condensation product of phenyl-azo-diamino-pyridine-hydrochloride, known as pyridium, is a most valuable internal urinary antiseptic. Its influence upon bacteria and pus is practically immediate. The more acute the in-

fection the more prompt will be the action of the pyridium. Two tablets, of 0.1 gm. each, are given three times a day. The dye stains the urine a brownish-red; the secretion from the prostate and seminal vesicles also is colored following the taking of pyridium. No internal urinary antiseptic so far given us will, with the same promptness, clear the urine of pus and bacteria. In gonorrheal infections it serves as an important aid in promptly getting the case under control. It should be needless to add that local treatment is never to be subjugated to internal medication, but is to be employed along with the local remedies mentioned in the preceding paragraph. Furthermore, where the chronicity of a urinary lesion is due to some mechanical obstructive factor, something more than internal medication is obviously demanded.

Self-treatment is always disappointing, even in the hands of the most intelligent patient. Either he gives himself an injection improperly, is in too great a haste or because of the pain accompanying the injection he does not use it at all, but misleads his physician into believing that he is carrying out instructions to the letter. The doctor must personally institute the therapy in Neisserian urethritis. If he is too busy to do this, he should turn the case over to a physician who will.

Every dram or two instilled into the urethra must be held in for at least ten minutes; in some cases fifteen minutes soak is better. A meatus clamp is handy here. For the first few days the patient reports to the office morning and afternoon. Thereafter once daily usually will suffice. At each visit patient reports with full bladder and voids in two glasses. This test, crude though it may be, gives sufficient clinical information for the practitioner to know whether or no the infective process has passed behind the compressor urethrae and invaded the posterior urethra. I never give a local treatment for active gonorrhea unless the patient can first flush out the urethra with urine. I believe this procedure

minimizes the number of complications which are apt to ensue. Smears under the microscope are checked with the Gram stain twice weekly.

A suspensory bandage is prescribed at the first visit for obvious reasons. A complete list of instructions of "dos" and "dents" are also given patient at this time. If the doctor will place all of his cards on the table at the first interview there can be no chance of misunderstanding.

Posterior Urethritis. Most cases of anterior urethritis develop a posterior involvement within a week after initial onset of symptoms. The prompt recognition of this complication means much if results are desired. Observing a cloudy second glass of urine and a complaint upon the part of the patient of frequency and urgency should immediately place one on guard. Irrigations are more harmful here than any other procedure you might use. More traumatism, with subsequent stricture formation, is produced by ill-advised, forceful irrigations than by any other means I know of. Eighteen years of experience in urological work has taught me the futility of the irrigation method of treating gonococcal urethritis. Instillations of a dram of a 2 per cent solution of silver nitrate administered by means of a Guyon woven silk, olive tipped catheter specially designed for the purpose, serves as a specific where the condition is gotten sufficiently early. But in any case 2 per cent silver instillations are superior to any other medication in the posterior urethra. These are given twice or thrice a week, depending upon the severity of the case and the reaction following its use. By having the patient supine on the treatment table, with the bladder empty, we can in most instances gently install a solution of mercurochrome, pyridium or neutral acriflavine into the posterior urethra by means of a two dram urethral syringe. In the process of injection the patient is asked to relax as well as to go through the act of voiding. This relaxes the sphincters and the medicament

passes easily into the posterior urethra and bladder.

Paraurethritis. Laterally to the urethral meatus and on the glans one not infrequently will observe a minute duct opening. The orifice of such a gland infected with gonococci will be found red and puffed and upon pressure will discharge a small drop of pus rich in organisms. Unless the clinician is on the lookout for these foci they might easily be missed. They serve as one factor in the perpetuation of so-called intractable urethrites. These glands are easily destroyed by one application of high frequency spark.

Periurethritis. An occluded periurethral gland may go on to abscess formation and, if left alone, may rupture either on the skin or into the urethra. Incising these abscesses should not be done hastily. The dread of a resultant permanent urethral fistula from such surgical intervention must ever be kept in mind. If the abscess points urethrally, it can best be opened through an endoscope with high frequency spark. Should the abscess point superficially, needle aspiratory puncture plus the injection of a few minims of a 1 per cent mercurochrome solution will usually bring about prompt resolution of the pus focus. The expectant treatment is with hot fomentations. If periurethral infiltrations assume tiny, shot-like feeling masses, they are treated by massaging them over a straight sound twice weekly until they disappear.

Cowperitis. There are two compound tubular glands situated between the two layers of the triangular ligament, anteriorly to the prostate, known as the bulbourethral or Cowper's glands, which have hitherto received little consideration by the clinician. When involved they can be easily palpated by placing the index finger within the rectum and pressing the thumb against the perineum. Many cases of intractable gonorrhea unquestionably are due to foci hidden away in Cowper's glands.

Unless they abscess little attention is paid them by the average doctor. Every male with chronic gonorrhea should be examined for Cowperitis. Massage to the perineum and the application of heat often produces pleasing results. Diathermy to the perineum has materially helped me clear up these foci which are so inaccessible. Abscesses obviously must be drained surgically.

Prostatitis. This complication of chronic infection by far makes up the bulk of the urologist's office work. We know that the great majority of urethral infections go posterior sooner or later, and authorities agree that posterior urethritis and prostatitis always go hand in hand. Only too few men take sufficient pains with their cases to make rectal examinations and to study the expressed secretion microscopically. The usual excursion of the index finger in carrying out massage is a swing from the lateral extremity of the gland towards the mid-line, downwards and outwards. The prostate, as you will recall, lies on the floor of the rectum just within the anal sphincter. Any physician, with a little practice, can acquire the proper stroke. Massage is superior to all other forms of therapy in prostatitis and is carried on, every day, until the secretion is free of pus and bacteria. This may require two months of treatment; it may take a year.

Seminal Vesiculitis. These structures are invaded with the gonococcus frequently and again massage is our mainstay. Because of the difference in glandular structure, the vesicles are emptied differently from the prostate. Here the finger adopts a downward and zigzag movement in order more effectfully to empty the sacs. If one wants to collect the prostatic and vesicular secretions separately the prostate is first massaged on a full bladder; the patient then empties his bladder and the vesicles are massaged and the secretion collected in a separate receptacle. Besides massage diathermy is used in the obstinate types of

both vesiculitis and prostatitis. No perfect electrode has yet been devised for this work but the v-shaped instrument that is placed via the rectum against the prostate with the other blade resting on the perineum is superior to others.

Stricture. With the more universal adoption of less cauterizing antiseptics and with a truer appreciation of the value of gentleness in all urethral manipulations, strictures are becoming rarer every year. Still they are met with and one never knows when he might have a patient with gonorrhea who harbors a congenital stricture. Silk bougies are far less traumatizing than steel sounds, and are becoming more popular all the time. The Kolmann dilator has a definite place in the treatment of strictures, particularly those at the bulb. Dilatation here serves a dual purpose in that it relaxes the annular scar within the urethra and at the same time massages the prostate from within.

Epididymitis. No complication of Neisserian infection is more painful than epididymitis. Nothing yet discovered relieves this pain as promptly as diathermy. This modality of physiotherapy does not only relieve the pain, but if applied sufficiently early, will reduce the swelling more rapidly than can be accomplished by other agents. The intramuscular injections of foreign proteins or the intravenous injection of mercurochrome serves as an added measure in relieving the more refractive cases. Epididymotomy is rarely practiced now. Diathermy has materially reduced the number of epididymi that go on the abscess formation. Naturally when abscesses develop incision and drainage becomes imperative.

Arthritis. This complication too often brings in its wake much suffering. Here again diathermy is the best agent at our command for promptly relieving pain and swelling. Foreign proteins intramuscularly or mercurochrome intravenously aid in many cases to hasten resolution. As-

piratory puncture to relieve the joint if fluid is being used less and less. Open operations on the joints are never practiced in my clinic. We depend upon rest and diathermy chiefly to promptly arrest the process. After all is said and done results will follow only if the primary focus of infection is recognized and efficiently treated. As the prostate and seminal vesicles are by far the chief offenders here, they must be treated assiduously.

TREATMENT OF THE FEMALE.

As the urologist deals alone with the lower portion of the urogenital tract in women, infection of the uterus, tubes and ovaries will not be considered here. They truly belong within the sphere of the gynecologist.

Any number of physicians are of the belief that gonorrhea in women is incurable. This, of course, is fortunately not true. If we seek out the foci infected with the gonococcus and apply rational therapeutic measures, provided we can enlist the whole-hearted co-operation of the patient, results are most satisfactory.

Bartholinitis. The vulvo-vaginal or Bartholin glands become infected in cases of gonorrhea in about 40 per cent of patients. Occasionally abscesses occur in these glands in neglected cases. Excising these glands I consider poor surgery. Such procedure exposes lymph channels which most often disseminates the infection rather than arresting it. The application of diathermy by means of the needle electrode inserted into the duct and gland sterilizes both in a few seconds. The after care consists of topical applications of 10 per cent mercurochrome.

Skenitis. Infections persist longest in the anterior third of the female urethra and this is attributable largely to diseased Skene's glands. Again the diathermy needle, employed through an urethral speculum or better through an electrically illuminated skeneoscope, is the most valuable agent we have to sterilize these foci.

Usually one gland is treated at the time. Within three days or a week the other is destroyed. This is done so as to avoid an undue amount of reactionary edema. The follow-up care is with 5 per cent mercurochrome. Dilatations to urethra once weekly, until we reach instruments of 30 or 32 F., are necessary following diathermy and mercurochrome therapy.

Endocervicitis. So much has been written within the past few years on diathermy and its value in endocervicitis that we need say little here. It is the one and only sure way to destroy gonococcal infections of the cervix and at the same time in no way injure tissue. Sufficiently intense heat will kill gonococci; that we know. With electrothermic high frequency we can obtain this needed degree of heat, within the tissues, for periods sufficiently long to destroy the bacteria.

CONCLUSIONS.

1. Gonorrhea perpetuates itself over indefinite periods of time by gaining lodgement in certain uro-genital gland structures. Only by searching carefully for these foci and then administering the proper treatment, over a sufficient period of time, can a cure of the infection be effected.

2. The newer dye antiseptics, pyridium, mercurochrome and neutral acriflavine in particular, seem to offer us much as agents which penetrate the tissues invaded by the gonococcus. Silver nitrate is by far the most reliable antiseptic we have for treating these infections. Instillations are far less traumatising than irrigations and are to be preferred as the most satisfactory means of applying these drugs.

3. Intramuscular injections of foreign protein substances and intravenous injections of small doses of mercurochrome serve as valuable adjuncts in the treatment of refractive cases. Small doses of neoarcphenamine, frequently repeated, sometimes give results when the above mentioned agents fail. Vaccines have proven a

complete failure in the treatment of gonorrhea and are not to be recommended.

4. Diathermy offers us an extremely wide field of usefulness in the management of these infections. In infected gland structures of the urethra of both sexes it is most satisfactory. In the prostatitis it has a fixed place. For acute gonococcal epididymitis it is the nearest thing to a specific that we have. In sterilizing Bartholin, Skene or cervical glands in women, it has no equal in the therapeutic field. Diathermy to painful, swollen gonorrheal joints promptly relieves symptoms.

5. Therapy directed at relieving any disease, no matter how efficiently executed, may fail due to the lack of proper co-operation on the part of the patient. The patient should be made to realize the seriousness of his or her infection and told of the possibility of resultant sterility or chronic invalidism where treatment is neglected. Sexual intercourse, alcoholic drinks and exercise are interdicted. Where the patient is married (and fully 60 per cent of our patients are married) the opposite party should be interviewed, when necessary examined, and if found infected, treated. Matters such as these, tactfully handled, should cause no disruption in marital felicity and are essential if a cure is to be expected.

6. Gonorrhea is curable and the means for dispatching these infections is accessible to all. The urologist has no secrets to hide from the general practitioner. No magic formula exists that will do the impossible. As in most phases of medicine, common sense plays a major part. Let us show more interest in the management of venereally infected patients.

MEDICAL THERAPY OF GALL BLADDER DISEASE.

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Diseases of the gall tract and liver are very common, and in their early stages are frequently overlooked. Alvarez states that from 5 per cent to 10 per cent of all women coming to autopsy have gall stones. Menker records that in six hundred and twelve consecutive necropsies in persons over twenty-one years of age, 66 per cent showed some pathology, though but 5 per cent complained of symptoms. Fisher and Snell found 40 per cent gall bladder pathology in two hundred abdominal operations.

The liver, gall bladder, bile tracts, stomach duodenum and intestines are all derived from the primary entoderm. The liver develops as an anlage from the duodenum and the gall bladder as a diverticulum from it. The gall bladder is guarded by a spiral duct and the common duct by the sphincter of Oddi. The gall bladder has a capacity of about 50 cc. and its walls are composed of fibroelastic tissue and smooth muscle, which is arranged in three layers, longitudinally, circularly and obliquely. Freese states that the pressure exerted in emptying the gall bladder is 220 mm. of water, or about the same as the secretion pressure of the liver. The liver secretes bile continuously which is held back by the sphincter of Oddi, flowing back into the gall bladder. The gall bladder concentrates the bile, and on stimulation of the sphincter of Oddi it flows out to take its part in digestion.

Most diseases of the liver and gall bladder are due to infection, some are due to disturbed cholesterol metabolism, and some to malignancy. Infection reaches the biliary system through the following means: through the hepatic artery from foci of infection as the teeth, tonsils, sinuses, etc.; through the portal system from the intestinal tract; through direct extension from the duodenum, which does not frequently

occur; by contiguity, namely from other infected organs, transperitoneally, which is probably rare.

Acute diseases may be limited to the gall bladder, but the chronic stages are rarely so, and are shared to a greater or less degree with diseases in the liver, pancreas, stomach, duodenum, intestines and appendix. Infection in the gall bladder may start suddenly with pneumonia, typhoid fever, acute sore throat, etc., or insidiously with the gradual feeding of the infected blood from some focus to the liver and gall bladder wall, which removes the bacteria to protect the body, finally itself falling invalid to it. Inflammation may start in any part of the gall tract and may clear up leaving focalization behind which most commonly is in the gall bladder due to the fact that there is more or less stasis here all the time. The infected gall bladder may clear up only to be reinfected. Lyons gives three vicious cycles which make it difficult for the gall tract to clear itself:

1. Mural infection in the wall of the gall bladder which then becomes a definite focus and sends the infection through the lymphatics to the liver and pancreas, and from both of these it is sent back to the gall bladder. This type, he thinks, will not get results from drainage, but 70 per cent to 85 per cent will get results from surgery, if performed by capable men.

2. The dissemination of the infected and poisoned bile through the intestinal wall, which may develop a mural infection into the mesenteric vessels and from there to the portal system into the liver, part going through the interior vena cava into the heart, and from there to the entire body.

3. Similar to the second, and represents the infected and poisoned bile being taken up by the lacteals into the cisterna chyli, into the left innominate or subclavian vein to the heart, and then pumped to the body, finally getting to the liver and adding another burden to the already injured organ.

Infection of the biliary system may have its beginning in childhood or early youth and may be classed into a period of infection, a latent period and a stage of complications.

The stage of inception may be instituted by an acute fulminating disease with high temperature, severe pain, nausea, vomiting, jaundice and tender liver, or may come on gradually and make it impossible to get a history of a definite beginning.

During the latent period the patient suffers little discomfort with occasional flare-ups, mild jaundice, indigestion, a dull pain under the right ribs, which is aggravated on exertion or stretching and may extend to the back or up under the right shoulder blade. There may be mild nausea and much gas distress with or without heart burn. There is apt to be constipation and dozey headaches, bad breath or bad taste in the mouth or occasional vomiting of sour green bile, or regurgitation. All may be more or less indefinite and transient.

With the stage of complications, one observes adhesions, stones, obstructions, pus, perforations, peritonitis and pancreatic involvement.

To secure a diagnosis, the history is very important and must be thorough, going into the early symptoms for signs of gastro-intestinal trouble. In examination, the pressing of the fingers into the relaxed abdomen under the right costal margin and having the patient breathe deeply may elicit pain when other signs fail. A fractional gastric study should be made and the biliary system drained and the bile examined microscopically and bacteriologically. A great deal may be learned from this study, the amount of information being dependent on the ability and experience of the physician. The finding of pus and bile-stained epithelium can be diagnosed easily. Due to the brevity of this paper I will not go into the discussion as to whether the gall bladder can be drained or as to why the bile flows. There is a great difference of opinion

among investigators on this subject, but these facts remain dominant, that the bile flows and flows easily to the stimulation of magnesium sulphate, peptones, olive oil, etc.; that in most cases three types of bile are obtained, the A, B, and C bile, and where not obtained pathology may be suspected; that with the flow of bile the gall bladder must empty to a greater or less degree depending upon the strength of the stimulus; and that nearly all men agree that more or less benefit is obtained symptomatically by the drainage. Roentgen-ray examination is important and is more accurate since the tetrabromiodophenolphthalein test has been used as an aid in diagnosis. In certain cases the use of the liver function test and blood chemistry may be of value.

In the treatment of all types and conditions of gall bladder disease, it is well to observe certain factors. All foci of infection which may be feeding the lesion must be cleared or removed. It is impossible to get results surgically or medically unless the source is eradicated. This applies to the teeth, tonsils, sinuses and upper respiratory tract, especially, but also to chronic bronchitis, diseases of the intestines, prostatitis and uterine diseases. The body must be placed in the best possible condition to overcome its invasion. The infection in the bile passages and gall bladder must be eliminated. Regular and thorough drainage of the biliary tract must be established and maintained. Complications must be averted.

Acute cases of gall bladder disease are medical, and surgery when necessary should be done in the interim. The following treatment depending upon the severity of the attack should be instituted. Auto-lavage of the stomach by letting the patient drink warm water and throw it up until it returns clear. This cleans and soothes the inflamed mucus membrane. Heat is applied to the right upper quadrant by means of hot water bottles electric pads or electric lights. Counterirrita-

tion may give relief in the form of mustard packs or plasters. In severe cases where a bad infection or an empyema is suspected the side should be packed in ice and kept so until the symptoms clear. It is in this type of case that surgery gets its highest mortality as well as many of its bad results and should not be used except as a last resort. It is true that all cases will not recover with this treatment, but the mortality will be much less than if treated surgically. If nausea persists after auto-lavage ten to fifteen drops of chloroform in a small amount of ice water can be given. Morphin will have to be used in some cases. No food should be taken for twelve to eighteen hours until the nausea and distress is relieved, and food should be started slowly with weak tea, gruels, skimmed milk or buttermilk, and added to gradually. Hexamethylenamin should be given in all infections in doses of fifteen grains three times daily for three days and at intervals until well. The urine must be watched for albumin as the drug used over long periods will injure the kidneys. This drug is excreted by the liver and gall bladder wall and is anti-septic. Salts should be given one half hour before meals as they neutralize the acid and reverse the osmotic pressure, drawing the fluid from the inflamed mucus membrane, reducing the engorgement. They also stimulate the gall bladder and liver. In cases of stone, the salts may cause increased pain and should not be used if this occurs. Salts have been recognized for centuries and form the method of treatment that thousands of patients receive at the springs and sanatoriums. Much can be done by the judicious use of salts, a good mixture being equal parts of magnesium sulphate, sodium sulphate, and sodium bicarbonate; a teaspoonful in warm water.

The subacute and early chronic cases should be treated during exacerbation in a similar way, but in the interim they should receive care as well. This should consist of:

Diet: milk, cereals and vegetables form a good standard. Where the liver is damaged a low nitrogenous diet is important so as not to throw more strain on it. In cases that tolerate olive oil, it should be given night and morning. Nearly every physician has had patients to whom surgery was advised, come in and tell him that they have been cured by the use of olive oil. In cases where stones exist stimulation of the flow may bring on an attack of gall stone colic, and many cases will have to go on very careful diet, avoiding rich, greasy foods, fried foods, tripe, sweet breads, crab meat, lobster, pork and sausage. Regular meals are important as this tends to empty the tract and prevent stasis.

Rest: Strenuous work or play aggravates the condition and may bring on an attack. The patient should lead an easy even life and avoid worry.

Drugs: Hexamethylenamine, saline cathartics and olive oil as previously stated constitute the fundamental armamentarium.

Drainage by means of duodenal lavage with some stimulant as magnesium sulphate, which is the strongest and is used in 33 percent solution or with olive oil, sodium sulphate, peptones, dilute hydrochloric acid, etc., followed by transduodenal flushing with Ringer's solution, as recommended by Lyons, is good. This may be done daily to weekly to begin with and the periods lengthened as improvement occurs. The patient may carry on the drainages occasionally after discharge from active treatment. In certain cases the drainages may be continuous and Lyons states that these cases should be hospitalized, the duration of the drainage being from ten days to two weeks.

Vaccines: Autogenous vaccines are recommended highly by some men where a definite infection can be demonstrated.

In the last group of cases in which complications have developed, surgery is indi-

cated. Cases in which stones are present are definitely surgical as it is impossible to remove them medically unless they are very small and records show that there is a higher cancer incidence in gall bladders that contain stones. Many of these cases will have to be treated medically after removal of the lesion as there is always more or less perihepatitis, choledochitis and even cholangitis present which must be cleared up if good results are to be constant.

Medical treatment is indicated in the following conditions: Early gall bladder and duct catarrh; simple catarrhal jaundice; in hepatic intestinal toxemias with dizziness, headaches, nervous indigestion, belching, biliousness, anorexia and malaise; military migraine; associated with other treatment in obstinate neuritis and rheumatism; acute cholecystitis, choledochitis and cholangitis; old people or patients in whom heart or kidneys contraindicate surgery; patients who refuse operation; in relapsing cholangitis after cholecystectomy, it may save a second operation; in persistent fistula following operation; in obstructive jaundice, together with morphin, may let the stone bob back or even pass and better the operative risk by clearing the jaundice; restless cholelithiasis with inflammation of the mucus membrane to quiet down and improve the operative risk; post-operative hiccough and adynamic ileus; early cirrhosis of the liver; typhoid carriers.

SUMMARY.

1. Medical treatment is indicated in all infections of the biliary tract. Complications are not infections, but the results of the infection, and are surgical.
2. Diagnosis must be made as early as possible.
3. Medical treatment must not be carried on past the stage where surgery will aid.
4. Medical treatment is an aid to surgery pre-operatively and post-operatively.

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CASE REPORTS AND CLINICAL SUGGESTIONS

PAPILLARY CYSTADENOMA OF THE BREAST.

REPORT OF A CASE.

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BELLAMY, ALA.

Papillary cystadenoma of the breast is one of the rare tumors, a large number of which undergo malignant degeneration. There is so little to be found in the literature on the subject that the report of a case may be of interest.

Case Report: A negro woman, aged 48 years, married, was admitted to the Bellamy Hospital, Nov. 13, 1927. One sister had died at the age of

44 years of cancer of the womb. The patient is the mother of five children, all of whom were breast fed.

She first noticed a lump the size of a marble in the right breast during November, 1926. This had gradually grown to the size of an orange at the time of the operation. It was never painful, nor was there any discharge from the nipple. She was well developed, fairly well nourished, though she claimed to have lost 50 pounds in the past year. There was a cardiac systolic murmur heard best over the apex. There was a mass in the right breast about the size of an orange located in the upper outer quadrant, freely movable, not attached to the skin, smooth outline on palpation, neither hard nor fluctuating, and with no discharge from the nipple. The axillary

glands were not palpable. The urine contained albumin. The Wassermann reaction was positive.

A radical amputation of the right breast was done Nov. 14, 1927. The axillary space was not thoroughly dissected out because of the poor condition of the patient during operation. She was discharged Nov. 30, to return for dressings and antisiphilitic treatment. She was last seen Dec. 21, 1927. The wound was healed at that time, and the patient apparently fully recovered from the operation.

Gross examination of the tumor showed a multilocular cyst filled with bloody fluid. It contained a large amount of papillomatous growth with multiple attachments to the cyst wall. At the base of the cyst, the growth had infiltrated the surrounding tissue.

Historical: Strasser⁽¹⁾ in his article gives a very complete history. He considers some of the cases which Astley described in 1829 as hydatid diseases of the breast, were in fact papillary cystadenomas. Brodin described the condition in 1840 but confused it with involution cysts, as did Birkett. Rougeau, in 1874, considered it a variety of retention cysts. Butlin thought epithelial irritation caused the intracystic growth.

Gross, writing in 1880, included them in the class of adenomas. Bowlby was the first to use the term duct papilloma, in 1888, but Strasser thinks he confused benign and malignant forms of similar conditions. Virchow, Sasse, Schimmelbush, and Trietze called it either cystadenoma papillari, intracanalicular cystadenoma, or papillary cystoma, but considered the condition only a developmental phase of involution cysts and malignant degenerations. Ill⁽²⁾ reported cases in 1905. Warren⁽³⁾ in 1905 did much to settle the classification, and since then the condition has been recognized as a distinct clinical entity. Greenough and Simmons⁽⁴⁾ in 1907, Bloodgood⁽⁵⁾ in 1908, Speese⁽⁶⁾ in 1908, Erdman⁽⁷⁾ in 1912, Upcott⁽⁸⁾ in 1913 have written on the subject and reported cases.

Etiology: Neither trauma, mastitis, lactation, marriage, nor celibacy seem to have any definite bearing. However, most of Erdman's patients were married women

without children. These tumors appear most often after the menopause, and at the average age of 50 years. Yet they may occur in the very young and in the old.

Histology: These cysts of the breast with intracystic papillomatous growths are usually single, but may be multiple, and even bilateral. They may be unilocular or multilocular. The papillomatous growth is attached to some segment of the cyst wall and may consist of only one papilla, or it may fill the cyst. There are often many points of fusion with the wall. The epithelium of the cyst is the same type as that of the lactiferous ducts, and is an outgrowth from some duct. The cysts are filled with a bloody serum, or, in an occasional case, a chocolate colored fluid. This serum usually escapes from the nipple, or may be expressed by manipulation. Should the duct be occluded, this characteristic feature is absent. The cyst may adhere to the skin in rare cases, and even open externally. These tumors tend to undergo malignant degeneration in about 50 per cent of the cases. The structure of the malignant growth is the adenocarcinomatous type. It is one of the least malignant and invades the lymph system only after a long time.

Clinical Diagnosis: This almost depends upon the presence of this bloody discharge from the nipple. Cancers, however, in some few cases show such a discharge, as do involution cysts also. Involution cysts are more diffuse, nodular, and more often are on the periphery of the glands. Papillary cystadenomas are usually situated near the nipple, ordinarily have no skin attachments, and are freely movable. They are not painful. These cysts may enlarge during pregnancy and lactation and secrete milk. Then they can be mistaken for malignancies or galactoceles. The presence or absence of palpable axillary glands should not influence the diagnosis, as they may be present in benign conditions and absent in cancers.

Treatment: The injection method of treatment has been discarded as it some times stimulates their growth. The recognized treatment is excision of the tumor or of the breast, and in case of infiltration through the cyst wall, the radical operation. Since exact diagnosis cannot be made without incision, many surgeons prefer to make an incision into the tumor at the time of operation, then to proceed according to their findings, either to simple excision of the breast, or radical amputation.

Upcott⁽⁸⁾ says if on cutting into it granular material is found instead of the usual bloody fluid; if the cyst is occupied by a nodular growth instead of a soft friable papilloma; or if there is much infiltration of the wall of the cyst at the base of the papilloma; or if there are many small dilatations filled with epithelial growth and blood, we can diagnose cancer and proceed accordingly. If there are none of these signs, it is well to remove the whole breast, for even local resection will cause the loss of the nipple.

Comment: Papillary cystadenomas, though rare, are important because so large a proportion become malignant. They grow so slowly that early treatment offers an excellent chance of cure. This paper adds another case to the number reported.

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EXTRA-GENITAL CHANCRE OF THE UMBILICUS.

M. WOLF, M. D.,

NEW ORLEANS

This case is one of extra-genital chancre, which I thought might be of interest because of the location of the lesion. In reviewing the literature I can find but fourteen similar cases reported, those by Cullen in Diseases of the Umbilicus.

This is the case of a negro boy who was treated at Touro last April. At that time a diagnosis of granuloma was made because of the character of the lesions at the junction of the penis and the abdominal wall, and bubo in the left groin. Scrapings were examined for Donovan bodies with negative findings. The Wassermann was negative. He was given tartar emetic from the fifteenth of April until the middle of July, without any benefit. No record was made of the scrapings from lesions sent to the laboratory for examination for treponema. On the twenty-third of August he was greatly improved.

When I saw him, November 10, he had a partially healed lesion at the corona and a completely healed lesion at the base of the shaft of the penis. I was checking up cases of granuloma to discuss at the Southern Medical Association meeting. At that time I did not think that the man had a granuloma. His lesions had healed except at the corona. He said that he had derived more relief from the six doses of salvarsan during August and September than from any previous medication. He came in on November 22 and a Wassermann was done by one of the members of the Staff and found negative. I saw him again November 26, and he complained to me of having a sore in the umbilicus. Examination showed the lesion on the corona almost healed. There was edema and induration around the umbilicus with a granulating ulcer in the umbilical fossa. Scrapings from the umbilical sore showed treponema pallida, the partially healed sore

on the corona was absolutely negative for Donovan bodies and treponema. He was to get arsphenamine and I have no record since second course of treatment was started.

Cullen reported first a case of Bloom's (1876), unquestionably syphilis; he also reported twelve cases in 1912 and three cases in 1914. Fischer, of Sydney, Australia, in a personal communication to Cullen cited one case in which a man had a chancre of the penis and a chancre of the umbilicus. Cullen cites Fournier, who,

working on 10,000 cases of chancre, found sixteen umbilical lesions.

A point of interest in this case is that the patient had arsphenamine several weeks before the lesion appeared at the umbilicus, and the lesion on the penis had not completely healed with arsphenamine.

Note: Since making the above report patient has been given more treatment with arsphenamine and the lesions were completely healed after the second dose, ten days after treatment was resumed.

NATIONAL LEPER HOME AT CARVILLE.—

Surgeon General H. S. Cumming has recently submitted to Congress an interesting report relating to the National Leper Home, located at Carville, La. During the past year 56 lepers were admitted to this hospital; 12 were readmitted and 2 patients were discharged on parole, as their leprosy was arrested and considered no longer a menace to public health. Seventeen deaths occurred during the year at this hospital.

The nativity of the patients in the National Leper Home is of interest. They come from 20 States and 3 of the insular possessions of the United States. Persons are also patients in the hospital from 24 foreign countries. Louisiana, Florida and Texas lead the States furnishing patients to the National Leper Home. At present 278 patients are under treatment in the Home. Practically all of these patients are receiving chaulmoogra oil, which is the drug that seems to be most beneficial in the treatment of leprosy. It is administered in some cases by mouth in doses ranging from 3 drops to 300 drops daily. Some of the patients receive intramuscular injections of this oil.

Leprosy does not respect race, creed or social status. A leprosarium for patients from a large country cares for a cosmopolitan group seldom encountered in a general hospital. The manifold manifestations of leprosy, with the diversity of symptoms and the variety of psychologic responses coupled with the conscious or unconscious pessimisms of the average human being suffering from a chronic progressive disease, confront the medical officers of this institution with the difficult problem of maintaining a proper morale. Recognizing the great importance of occupation to prevent morbid introspection, paid employment is offered patients physically and mentally fit to work at light tasks, to the profit of both patients and hospital. During the current year, on an average of 81 lepers have been thus employed at the hospital, the assignments ranging in variety from the more simple duties of housekeeping and bedside care of fellow-patients to the more exacting work as assistants in the general laboratory, physiotherapy department, dental laboratory and operating rooms. Daily routine occupation is there supplied to one-third of the total population of the hospital and to almost all of those physically fit for such an undertaking.—Bull. U. S. Pub. Health Service, April 23, 1928.

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HOSPITAL SERVICE IN THE UNITED STATES.

A recent number of the official organ of the American Medical Association has just published a special hospital number detailing much information concerning hospitals in the United States. The facts are compiled from a census of hospitals taken in the last few weeks and are not obtainable elsewhere. Perusing the report it is noted that in Louisiana there are forty-two general hospital with a capacity of 5,155 beds, having an average of 3,430 patients. The percentage of occupancy is 66.5 as compared with 66 per cent in general hospitals

in the United States. The nervous and mental hospitals in the state number 5 with a capacity of 4,249 and having 3,860 patients. In addition to these general hospitals there are a total of 67 registered hospitals with 11,208 beds and 8,255 patients. In the state of Mississippi there are 58 general hospitals with a bed capacity of 3,025 and an average number of patients in these beds 1,584. In Mississippi the nervous and mental hospitals are 3 in number with a capacity of 3,237 with virtually all places filled. For the care of the tuberculous, Louisiana has 5 hospitals, with 632 beds with an average of only 317 patients. Mississippi has 2 such hospitals with 524 beds, 325 of which are occupied on the average. Mississippi has a total number of 70 registered hospitals, a capacity of 7,062 and an average census of 5,175.

This report of hospital service will prove of great value for ready reference in order to determine the size and number of the hospitals throughout any state, the type of service rendered by a particular institution, whether the hospitals are approved for internship training, whether they have a nurses training school, and such general information. It gives practically all the data and facts about hospitals which one would be called upon to use ordinarily.

PERCUSSION OF THE HEART BORDERS.

There has always been considerable doubt in the minds of clinicians and students as to the accuracy and value of the determination of the size of the heart by percussion. Admitting that percussion is the most difficult of the methods of physical diagnosis to master, and that confidence and accuracy are attained only after considerable experience, the question still remains as to the actual comparison between the area of cardiac dullness and the size of the heart as determined by our most accurate clinical method, the Roentgen ray. Kurtz

and White* have made a study of one hundred patients of all ages and both sexes, comparing the results obtained by percussion with those obtained by the use of the roentgenogram taken at a distance of 7 feet. Three different observers made the percussion observations, a fourth individual determining the roentgen ray findings. The observations were apparently well conducted and they are certainly interesting. For example, the average "error" in the percussion of the left border of dullness at the apex varied from 0.2 to 1.5 cm., averaging about 0.6 cm. It was noted also that the area of supracardiac dullness in the second space, measured from right to left, was narrower than the width of the great vessels as shown in the roentgenograms in 88 of 97 cases. This was considered the most difficult measurement to obtain by percussion, and is usually inaccurate unless the widening is rather marked.

The authors conclude that percussion is of value and is reasonably accurate. The border of dullness was taken as being most accurate not at the point of the first change in note but where the dullness is first definite. Certainly considerable emphasis must be placed upon the technic of percussion. The authors think that cardiac enlargement can be determined with a fair degree of accuracy for all practical clinical purposes by considering whether or not the left border of dullness lies outside the midclavicular line, in which case the heart may be considered enlarged. This study confirmed this view and 78 per cent of the cases showing signs of pathology extended past the midclavicular line.

Considering the applicability of percussion to all cases and the reasons prohibiting the routine use of the Roentgen ray the study strengthens our confidence in the accuracy of this readily available method of determining heart size. Certainly it would be of decided advantage to check our percussion results occasionally with

the more accurate method, so endeavoring in this and every other manner to perfect our percussion technic which is to a large extent to determine the reliability of the findings.

PHYSICIANS IN THE EMPLOYMENT OF THE UNITED STATES GOVERNMENT.

Some very interesting information is presented in a recent bulletin of the United States Civil Service Commission. It shows very definitely, through the mind of an unprejudiced reader, that there should be some central control of the medical service provided by the United States. In addition to the three larger services of the Navy, the Army, the Public Health, all under different departments, we find the following disposition of physicians in the Governmental service. In the Department of Agriculture, four are employed, whose sole duty is to interpret the truthfulness or falsity of statements on medical labels. In the Department of Commerce, two physicians are detailed to Pribilof Islands, Behring Sea, six are assigned to the coast survey service, including Alaska and Hawaii, while the sole physician assigned to this service in the Philippines has to take care of the health of the crew. When the health of the crew is excellent he has to fall to and help out in the surveying operations. In the Department of the Interior, eight are on all year around detail in Alaska, three are in the Freedman's Hospital, and forty in St. Elizabeth's hospital. There are 125 full time physicians and 65 contract physicians who have care of the health of the Indian wards of the nation. The Pension Claims Department employs 15 doctors. The Department of Labor is satisfied to get by with 10 doctors, three of whom are in the Child Hygiene Division and seven in the Maternity and Infancy Division. The Treasury Department employs 350 full time medical officers, with the rank of Acting Assistant Surgeon, not commissioned in the Public

*Kurtz, Chester M., and White, Paul D.: *Am. Jour. Med. Sc.*, 176:181-195, 1928.

Health Service, while one hundred and fifty are on part time. The Veterans' Bureau has the largest number of physicians in any division, twelve hundred receiving pay from the Government. In the Panama Canal Zone, 28 men are employed in dispensary and quarantine work in addition to those in the Public Health, Army and Navy services. Certain divisions of the Government not under main departments also employ a few physicians; thus there are two in the Government Printing Office; one in the Bureau of Engineering; one is doing relief service, and one is giving his service to the Civil Service Commission.

In addition to the definite impression that all these medical services should be under one head, one is also struck by the variegated and widely dispersed duties of these medical men. Contrast the life of the two physicians assigned to the Pribilof Islands, or the eight in the Alaskan medical service, and the 125 in the Indian service with its strenuous activity, and physically exhausting demands with the peace-

ful and quiet existence of the 40 physicians who are in St. Elizabeth's Hospital, or the four laboratorians in the Department of Agriculture, or the seven men in the Maternity and Infancy Division. It makes one appreciate more than one usually gives thought to the matter, in looking over the list of doctors employed by the United States how far flung is this United States, and how many activities the Federal Government undertakes.

INTERSTATE POSTGRADUATE ASSOCIATION.

The Interstate Postgraduate Medical Association of North America will meet in Atlanta, Georgia, this year, from October 12 to October 19. The preliminary program includes the names of medical men of national and international reputation. These meetings are always well worth while, and certainly this meeting in Atlanta presents a wonderful opportunity close at hand.

THE IMPORTANCE OF RESPIRATORY DISEASES AS A CAUSE OF DISABILITY AMONG INDUSTRIAL WORKERS.—A large electric light and power company, which pays full wages to its employees who are disabled by sickness, keeps a record of the diseases which cause time lost from work. The company asked the United States Public Health Service to co-operate in the analysis of this record. When the tabulations were completed, it was found that more than one-half of all the absences on account of sickness among the men in the employ of the company was caused by diseases of the respiratory system, the more common of which are the ordinary cold, sore throat, tonsillitis, bronchitis, influenza or gripe, and pneumonia. This record is of especial interest, because it includes all absences lasting one day or longer during a ten-year period.

As a cause of absence from work among employees of this company, no other disease group approached in importance the respiratory diseases. In fact, the respiratory diseases caused more absences than all other diseases combined. It is not unreasonable to suppose that this sickness experience is more or less representative of the experience of other groups of employed persons.

The records of employee benefit associations scattered over the northern and eastern part of the United States

tell much the same story. From the recorded experience of 35 different sick-benefit associations having a combined membership of nearly 100,000 persons, it was found that respiratory diseases caused 47 per cent of all the cases of illness for which sick-benefits were paid from 1921 to 1926, inclusive. This source of information covers only the more serious sicknesses, because these associations made payments to their members only when illness caused inability to work for 8 days or longer.

Thus, whether we consider all absences from work on account of sickness, or only those illnesses which lasted longer than one week, we find that approximately one-half of the cases were some form of respiratory sickness. Apparently, man's breathing apparatus is especially liable to microbic attack. With this evidence that the organs of respiration are particularly vulnerable, it is apparent that we ought to take special precautions against respiratory infection.

The sickness records of the electric light and power company showed, also, that the average loss of time on account of sickness was approximately six days a year per man on the payroll. Approximately three of the six days lost from work per annum were lost on account of respiratory diseases.—Bull. U. S. Pub. Health Service, April 19, 1928.

HOSPITAL STAFF TRANSACTIONS

TRANSACTIONS OF STAFF OF SOUTHERN BAPTIST HOSPITAL.

Dr. L. R. DeBuys presented a case of Baby R., born 9/19/27, and seen in hospital in September. The child presented several interesting features. It was not an extremely rare condition, but one that we come across in the newly-born—a case of hemorrhagic disease of the newly-born. This case had been referred to him by Dr. Phillips, who delivered the mother with forceps. The child showed, the first day, an ecchymotic spot under the right eye which was looked upon as a traumatic origin. On the second day, the baby became ill and vomited blood. He was then asked to see it. On examination, the original ecchymotic spot under the right eye was noted as well as two ecchymotic areas over the lower part of the chest, and also similar spots behind the elbows where they had been resting on the mattress, and another spot on the buttocks. She was considerably dehydrated with the fontanels much depressed and overlapping of the sutures. Physical examination was negative, with the exception of the liver, which extended below the costal border about one inch, and the spleen, about one-quarter of an inch below the costal border. Examination of the mouth showed the presence of thrush. The reflexes were all negative. There were no focal symptoms and there was apparently no evidence of any hemorrhage involving the nervous system. There was great difficulty in breathing and an inability to swallow. The temperature was 101.5°F. The birth weight, which was reported to have been 6 lbs. 14½ ozs., when first seen by him, was 6 lbs. 7 ozs. The infant was considered to be desperately ill. The stools showed blood macroscopically. The condition was apparently one of hemorrhagic disease of the newly-born. The blood count showed total red blood cells—2,780,000; white blood cells—8,500; platelets, 61,000, and a differential count of small lymphocytes, 50 per cent; large mononuclears, 18 per cent; polymorphonuclears, 32 per cent. There were present, normoblasts and megaloblasts, and poikilocytosis and anisocytosis existed. The bleeding time was 20 minutes and the coagulation time, two minutes. The baby was immediately placed in the incubator at a temperature of 95°F. 10cc. of whole blood was given intramuscularly at eight hour intervals. Adrenalin, one minim, by needle every four hours. 5 grains of calcium lactate was given every four hours. Oxygen was administered continuously, 180 bubbles per minute. 1 per cent gentian violet was applied to mouth twice daily for the thrush. Nasal feeding every four hours was instituted, 50 per cent mother's milk being administered, the milk being expressed from the mother by the Abt breast milker. Instructions were given for no

bath and no handling. Because of the vomiting of blood, rather than cause any trauma, feeding was accomplished through the nasal tube, the tube being introduced and allowed to remain in place there, being secured with adhesive. This tube was occasionally changed from one side to another because it was thought that it might cause some irritation. The second day the coagulation time had been reduced to 2½ minutes and the bleeding time to 3½ minutes. The urine showed nothing of any moment. The baby's condition remained more or less stationary until September 23, 1927, when she showed some improvement. September 24, 1927, slight vaginal hemorrhage was noted. September 25, 1927, Ceanothin was given. After September 26th there was no more hemorrhage, and there was no more bloody nasal discharge. The intramuscular injections of blood were given until October 2nd, namely, for a period of about twelve days. The tube feedings, which had been gradually discontinued, were entirely supplanted by the use of the Beck feeder, no further tube feedings being given after October 2nd. The baby was discharged from the hospital on October 14th, at which time the total red blood cells had gone up to 3,960,000; hemoglobin, 90 per cent; coagulation time, 2 minutes; bleeding time of 5 minutes, and the differential count practically normal. During the time the child was in the institution there were two rises in temperature lasting three and four days respectively. The condition responded very nicely to the intramuscular injections of blood. The advantage of giving the blood intramuscularly is that it can be done promptly, there being no necessity for waiting for typing and so on, and the effects are extremely good. In some of the more severe cases where there is sluggish response to the intramuscular injections, he has used the blood intraperitoneally. At the time that this case was here, he had another one at the Touro Infirmary which required intraperitoneal injections besides the other measures adopted in this case. Three injections of the whole blood which had been typed were given in the following quantities: 60 cc., 45 cc. and 45 cc. In cases of this type, the urine as well as the stools should be watched for evidence of hemorrhage. When it is necessary to resort to frequent intramuscular injections of blood, the injections should be gradually diminished in frequency and then in quantity. The baby should not be handled.

Dr. Alton Ochsner chose for his subject a recent case of a patient who was admitted to the hospital, giving a history of having been hit by a truck. She was comatose when she came in, being roused with difficulty. There was some difficulty in obtaining a history, because for several years she had been having attacks of epilepsy. Whether she

had an attack when hit by the truck, or not, was not known. At no time, was there evidence of any shock. Roentgen-ray pictures were taken in the admitting room and Roentgen-ray plates showed a depressed fracture in the parietal region extending backward. Spinal puncture readings were 18 mm. mercury with some blood. Because of the depressed fracture, it was decided to elevate the bone. This was done on the day she was admitted, but she was treated by dehydration, being given glucose intravenously. On the following day, a craniotomy was done: The depression was found not to be very marked, the outer table being depressed very slightly. On opening the skull, however, it was found that we were dealing with a large hematoma. This was evacuated. The dura was opened and nothing was found. The depression was released and the patient sent back to the ward. She was treated post-operatively with hypertonic glucose, 50 ccs being given immediately after being returned to the ward, and six hours later. The following morning her condition was very much better. She felt fairly well and wanted something to eat. During the first day, the condition remained uneventful. On the evening of the second day she was again somnolent and gave very few answers. We thought we were dealing with the reappearance of the cerebral edema, and physical examination showed hyperflexion on the side of the body opposite the hematoma. I suggested to the interne that more hypertonic glucose be given intravenously and magnesium sulphate by rectum. Before this was done, however, another spinal puncture was done. Much to our surprise, instead of getting a manometric reading of 8-10 mms. of mercury, we were only able to get 1 mm. of mercury. There existed a hypotension of the cerebro-spinal fluid. Had we gone ahead and given the patient a hypertonic solution and attempted to dehydrate her, she probably would have been killed. We gave her 30 ccs. of distilled water intravenously, and within thirty minutes, the patient was well.

Dr. Ochsner then showed a slide which was made by Dr. Mims Gage, who marked out a way of teaching it to the students so that it is something to grasp. It gives an idea of the relationship of the various factors which we have. One thing should be emphasized: too much dependence should not be placed on blood pressure and pulse. At a meeting of the Charity Hospital staff two weeks ago, Dr. Jones reported two cases of cerebral injury treated by dehydration, the spinal fluid readings having shown over a period of time a marked increase of cerebro-spinal pressure, yet there was no increase in the blood pressure at the time. Manometric readings should be made early. The rule is, remove half the excess. Thus, if we have a reading of 18 mms, we have an excess of

10. We remove until the reading is 13. The treatment which we have been teaching to the student is that when a patient is in a state of shock, nothing is done until the shock has been controlled. Following treatment of shock, spinal puncture is done. If there is excess pressure according to the manometric reading, one-half of excessive amount is removed and dehydration commenced. We simply use glucose solution. Weed and McKittrick of Johns Hopkins, use hypertonic saline solution. Sodium chloride undoubtedly will relieve cerebral edema, but not without danger. It is possible to produce tetany as in a case we saw. It must be introduced extremely slowly, not more than 1 cc. per minute.

The point which must be stressed is that hypotension of the cerebro-spinal fluid is rare, but not so rare as we might imagine. Stultz reports three cases. These individuals usually complain of headache. Two were treated by intravenous method, while the third was given large amounts of water by mouth and by duodenal drip. In advanced cases, it is not wise to wait because it is perfectly safe to give 30 ccs. of distilled water intravenously. Often another puncture gives an increased spinal fluid pressure.

Dr. J. Holmes Smith, Jr., spoke regarding a condition of more or less importance, particularly as regards its association with anemia. Diagnostically, it is considered essential to the diagnosis of pernicious anaemia. The condition is known as achylia gastrica. This term really implies an absence, not only of hydrochloric acid, but of all gastric secretion. At the present time it is applied, also, to those cases showing only a lack of hydrochloric acid.

Achylia gastrica, in most instances, is probably the result of a toxemia which gives rise to a gastritis and the gastritis, in turn, interfering with the acid-secreting cells of the stomach. This toxemia may result from conditions in the intestinal tract or be caused by systemic disease, such as syphilis and tuberculosis.

A total absence of free hydrochloric acid, in the stomach, may occur in an otherwise healthy subject and apparently be not incompatible with good health. However, individuals having an achylia gastrica are frequently prone to gastrointestinal upsets, chief of which is probably a tendency to attacks of diarrhea, due apparently to improper digestion of proteins and a too rapid emptying of the stomach. A more important result of achylia, however, is a tendency for such individuals to develop anemia of varying grades. This anemia appears to be the result of an excessive bacterial invasion of the duodenum, incident to the lack of acid in the gastric contents. Anemia, so produced, is most frequently of the secondary

type, but a certain percentage of the cases develop into a true pernicious or hyperchromic anemia.

Diagnostically, there must be a true, persistent achylia present, before we can assume that any anemia is of the pernicious type.

It is well, at this point, to emphasize that one examination of the gastric contents is not sufficient for the diagnosis of achylia gastrica. The appearance of free hydrochloric acid in the gastric contents is sometimes quite delayed after the giving of a test meal. Sometimes, a simple test meal, such as that of Ewald, will not provoke an acid response, but a protein meal will. If it is suspected that an individual has an achylia gastrica, then the first thing is to make a fractional gastric analysis, collecting the first sample in about thirty minutes and continuing to collect samples until two hours after giving the meal.

If, by the fractional method, no acid is found in the gastric contents, we are still not justified in diagnosing a true achylia gastrica, because there may simply be a temporary suppression of the hydrochloric acid. This suppression of hydrochloric acid or false achylia may be quite temporary or may last for some time.

As an aide in the diagnosis of achylia and also as a means of avoiding delay in diagnosis, we are in the habit of giving such individuals a subcutaneous injection of a preparation known as histamine. Histamine is a protein derivative and has the property of provoking a secretion of hydrochloric acid, provided the gastric cells are capable of functioning.

The histamine may be given immediately after the fractional analysis, or at a later time. Following the giving of histamine, samples of gastric contents are secured at frequent intervals and examined for hydrochloric acid, as in the ordinary method. The appearance of acid may be very soon after giving the drug or it may be delayed. When delayed, samples should be collected for at least an hour and a half.

In those cases which do not respond to histamine, we feel that a diagnosis of true achylia is justified.

It should, probably, also be mentioned that histamine has the property of temporarily lowering blood pressure and occasionally the patient will have symptoms such as flushing of the face, tightness in the chest, etc. In his opinion, any symptom complained of are due most likely to protein reaction and not to lowered blood pressure.

Dr. C. W. Allen spoke of a little patient of his and showed some interesting photographs of him, a few taken when the child was younger and

some taken just before operation. Dr. Allen said that this was as bad a case of cleft palate as he had ever seen. The patient was operated on twice as an infant and the operations failed. It seemed impossible to do anything for him. It is believed that what success was had with the case was due to several operations and in not trying to do too much at one time. The child, who is now ten years of age, has been operated on five times, his lip having been closed last week. There are now two little holes left and the palate is not closed, but it was not deemed advisable to do anything for several months, depending upon the condition of the tissue which will constantly shrink and get down to a small point beyond which no closing will be desired. The first time, the tissue stitch came loose and the flap fell backward near the midline; the second was made strong and he has a very nice result. One more operation, the sixth, will be necessary.

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL.

At the regular staff meeting, held July 11, 1928, the following cases were reported:

Intra-Abdominal Hemorrhage from Rupture of Right Ovary.

Dr. G. M. Street—Mrs. R. T. C., aged 23, never pregnant, with a past history which up to one year ago was negative, was seen in this clinic eight months ago, at which time diagnosis of cystic ovary with adherent retroversion was made and operation advised. Medication also was prescribed at that time for an acute digestive disorder. The patient returned home to prepare for necessary surgery, but obtained relief from symptoms and was not heard from again until admission to hospital on July 1.

Ten days ago, immediately following sexual intercourse, was taken with severe pain in right lower quadrant, nausea and backache. A local physician prescribed, and in a few days patient was feeling much better. Eighteen hours before admission, again immediately following intercourse, she had the same pain in abdomen, this time more violent and extending across whole lower portion, nausea, vomiting, and followed in a few hours by fever of 100.4°F. Morphine was required for relief.

On admission temperature was 100.8°F., pulse 110, lower abdomen full with tenderness more acute over lower right quadrant. The slightest pressure on cervix or in right fornix caused acute pain. Leukocytes 18,400, with 92 per cent polymorphonuclears.

Operation: A large quantity of free blood and serum was in the peritoneum and the pelvis filled

with blood clots, old and fresh. Right ovary showed a ruptured cyst and was actively bleeding. The left ovary was cystic and size of goose egg; the uterus was bound down in pelvis; both tubes sealed and distended with clear fluid (chronic hydrosalpinx, bilateral).

We were confronted with a proposition which seemed clearly to indicate removal of both ovaries and tubes in an attractive young woman of 23 years, and this we did not want to do. A small solid portion of the left ovary was dissected free of the large cyst and allowed to remain and the inner third of the right ovary, the most normal part, was dissected free from the hemorrhagic portion and left in place. This seemed to be better than to remove both ovaries entire and then to do an ovarian transplant, as we were able to leave these portions of the ovaries with good blood supply. The tubes were removed, uterus fixed in a forward position, appendix removed, and wound closed without drainage. Patient has made an uneventful recovery.

Surgical Pathology: Right tubes curled in cystic mass $2\frac{1}{2} \times 2 \times 1\frac{3}{4}$ inches, convoluted and kinked. Microscopic: Fibrosis; cystic distal; chronic, some acute inflammatory distal.

* Right ovary (section)— $1\frac{1}{2} \times 1\frac{5}{8} \times \frac{5}{8}$ inches, moderately soft; filled with blood clot, exuding through opening $\frac{1}{4}$ inch. Cyst size of pea on surface. Microscopic: Cystoma (multiple); much interstitial hemorrhage; large corpus leuteum, recent, apparently not involved in hemorrhage.

Diagnosis: Appendicitis, chronic and acute; salpingitis, chronic, cystic, bilateral; hemorrhage of ovary, right; cystoma of ovary, right.

The object in presenting this case is to demonstrate the fact that a serious intro-abdominal hemorrhage occasionally occurs from rupture of the ovary. This is the third case of this type seen in the past three years. The first one presented more serious symptoms of shock than the one here presented. Differential diagnosis from ruptured tubal pregnancy is difficult.

The case was discussed by Drs. A. Street, L. S. Lippincott, S. W. Johnston, L. J. Clark, and J. A. K. Birchett, Jr.

Ulcer of the Duodenum with Long-Standing Chronic Perforation.

Dr. A. Street—Mr. M. J. S., aged 52, a married man with five children, was admitted to the hospital March 19. Onset of symptoms began eight months ago with nausea and vomiting of huge quantities of fluid, not of "coffee ground" type; marked constipation; slight fever, not over 100°F .; no pain except one night when had lower abdominal colic. Following this first attack, he lost 20

pounds in weight. He then improved, become free of symptoms, and gained 25 pounds in weight. There was a recurrence of symptoms one week ago with vomiting of large quantities of fluid, slight fever, slight icterus, constipation and tarry stools, together with extreme prostration and rapid loss of weight. He could feel fluid splashing in epigastric region on shaking.

He had had a period of suffering from hunger pain twenty years ago.

Physical Examination: Temperature 100°F .; blood pressure, 105/90. Extremely weak; emaciated; skin slightly yellow. Physical examination was not remarkable except for the abdomen which was slightly distended and showed visible peristalsis at and slightly above level of umbilicus. Marked succession sounds could be elicited in epigastrium. Liver was enlarged to two inches below right costal margin; edge firm; no other masses made out.

Blood: Hemoglobin, 34 per cent; erythrocytes, 2,400,000; much anisocytosis, some poikilocytosis, slight polychromatophilia; coagulation time 2 minutes; bleeding time, 30 seconds; leukocytes, 12,500; neutrophils, 91 per cent.

Gastric Contents: Brown color; chemical, blood +++; total acid, 39; free HCl, 36; combined acid, 1; no lactic acid; no bile. Feces showed blood.

Roentgenologic examination: Stomach is very large with marked gastroptosis, much of stomach being below the pelvic brim; otherwise not remarkable. Duodenal cap fills imperfectly and shows deformity consistent in appearance with duodenal ulcer.

The patient was treated by diet and stomach kept fresh by daily gastric lavage for 22 days following admission, with slight improvement.

Operation performed April 10. High right rectus incision. An inflammatory mass was plastered to the under surface of the liver, including gall bladder, upper portion of duodenum and the pylorus, with omentum densely adherent. It was thought inadvisable to attempt to break up this mass, as this could hardly be done without tearing of structures, and furthermore it was not known what the mass might contain. In order to get information as to the condition of the stomach and duodenum, a vertical incision was made in the stomach $1\frac{1}{2}$ inches proximal to the mass. A finger was then passed through the pylorus into the duodenum. A perforated ulcer was easily made out on the upper surface through which the finger easily passed into a cavity on the under surface of the liver, about the size of a lemon. The tissues did not give the impression of being carcinomatous. Gastro-enterostomy seemed to be

the only possible beneficial procedure, and in order to facilitate matters, anterior gastro-enterostomy was easily and rapidly done by anastomosing the jejunum to the exploratory opening in the stomach.

Patient's recovery was uneventful and progress up to the present has been uninterrupted.

Discussed by Dr. S. W. Johnston

Fracture of the Os Calcis, Illustrated by Roentgenologic Studies of Four Cases.

Dr. J. A. K. Birchett, Jr.—Fracture of os calcis is generally due to fall upon the foot from a height by contraction of the muscles attached to the tendoachilles or forcible inversion of the sole of the foot. The bad results are raising, shortening and outward deviation of the heel with flattening of the arch, fragments projecting into the sole, loss of motion between os calcis and astragalus, and mechanical interference between os calcis and external malleolus. Temporizing with fracture of the os calcis is courting disastrous results. Average disability is from 12 to 18 months in face of radical treatment, and the more severe cases are permanently disabled. Cotton found 90 per cent permanent partial disability, and Manguson shows a disability of 35 to 75 per cent.

Discussed by Drs. A. Street and S. W. Johnston

Tuberculosis of the Maxillary Sinus.

Dr. E. H. Jones—This case is presented because of the rarity of the condition and the method of treatment. Up to 1907, only 20 cases of tuberculosis of the maxillary sinus had been reported in the literature.

The patient, a man, aged 50, was bleeding from nose every day in amounts from one to four drams

and had bled as much as an ounce in one day. He had pulmonary tuberculosis.

Radical antrum operation was performed. A tubercle was found on a septum from the roof, but pathologist was unwilling to make a positive diagnosis of tuberculosis. After treatment by oil according to the Sludder method, purulent material from antrum showed tubercle bacilli. Treatment was then changed to chaulmoogra oil, using every day in five cc. amounts. Condition rapidly improved and after one year there is apparent cure.

Discussed by Drs. A. Street, Lippincott and Johnston.

Aneurism, Probably of the Arch of the Aorta.

Dr. L. J. Clark—The patient, a negro man, aged 52, with pulsating mass size of orange, eroding through upper sternum, slightly to left, of thirty days' duration; had been in excellent health previous to that time. Present symptoms are pain referred down left arm, shortness of breath, partial loss of voice, and slight brassy cough.

Physical examination shows well developed and nourished man, with a heart markedly enlarged, with loud systolic murmur at apex; blood pressure 130/60 right, 120/60 left arm. Fluoroscopic examination shows large pulsating mediastinal mass, about $4\frac{1}{2} \times 3 \times 4$ inches, and extending anteriorly through chest wall. Wassermann test +++.

Discussed by Drs. Johnston, A. Street and Birchett, Jr.

Special Report: The recent meeting of the American Society of Clinical Pathologists.—Dr. L. S. Lippincott.

LEON S. LIPPINCOTT,
Secretary.

METHOD OF CARRYING OUT TWO-STAGE OPERATIONS FOR CARCINOMA OF STOMACH.—Because of the troublesome experience with gastro-enterostomy it occurred to Donald C. Balfour, Rochester, Minn., that the difficulties might be avoided by dividing the stomach completely above the growth, closing the end of the lower segment and re-establishing gastro-intestinal continuity either by a retrocolic end-to-side gastrojejunostomy or an antecolic end-to-side gastrojejunostomy with entero-anastomosis. The advantages of such a procedure are obvious. First, the operation can be done under local anesthesia; it takes but little more time than gastro-enterotomy. Second, perfect drainage of the stomach is established immediately, and the patient can take adequate nourishment without difficulty. Third, the second stage is usually simple, since the pyloric segment is free and can be mobilized quickly and easily. Furthermore, complete exclusion of the pyloric segment for a period of from ten to fourteen days will have lessened the activity of any inflammatory process to an astonishing degree, and growths which at the first operation appeared questionably removable may now be resected with ease. Finally, there is no interruption in the feeding of the patient, since there

is nothing to be done with the upper segment of the stomach at the second stage. He gives a description of his method.—J. A. M. A., June 16, 1928.

MECHANICAL TREATMENT OF EXPERIMENTAL RATTLESNAKE VENOM POISONING.—From the experimental reports made by Dudley Jackson, San Antonio, Texas, and W. T. Harrison, Washington, D. C., it is quite evident that rattlesnake venom experimentally injected into dogs can readily be removed from the tissues by incision and suction, an animal receiving as high as four minimal lethal doses recovering when treatment has been delayed for one hour. This highly toxic material will escape in part from the edematous tissues if simple multiple punctures of the skin are made. That this fluid is highly toxic is shown by the fact that when injected in other dogs it will cause death with all the signs of venom poisoning. The poison contained in this fluid is neutralized in vitro by the specific antivenin and is not affected by diphtheria antitoxin; that the toxic fluid which is removed contains venom cannot therefore be questioned.—J. A. M. A., June 16, 1928.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

Report of the Examination of the Books of the Orleans Parish Medical Society, New Orleans, for the Year Ending December 31st, 1927

New Orleans, La., May 15th, 1928.

Orleans Parish Medical Society,
New Orleans, La.

Gentlemen:

In accordance with instructions received from your Treasurer, Dr. J. A. Lanford, I audited the books of the Society for the year ending December 31st, 1927, and submit my report attached herewith.

FINANCIAL CONDITION

Domicile Fund

Gold Bonds, see folio 12.....	\$31,374.96	
Savings Account, Marine Bank.....	579.78	\$31,954.74
	<hr/>	

General Fund

Cash in bank	463.86	
Petty Cash, in office.....	16.20	
Certificates of deposits	2,000.00	
Inventory of fixtures, see folio 6.....	658.12	3,138.18
	<hr/>	

Library Fund

Cash in bank	178.04	
Petty Cash, in office.....	4.65	
Gold Bonds, see folio 12.....	7,878.98	
Inventory of books, see folio 7.....	27,269.38	
Inventory of fixtures, see folio 8.....	2,155.45	37,486.50
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Medical Relief Fund		114.35
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72,693.77

Less insurance premiums paid in advance and due the Insurance Co. to be paid at a later date.....		359.03
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Net Worth		<u>\$72,334.74</u>
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The \$30,000.00 U. S. Liberty Bonds for account of the Domicile Fund held by the Society for some time were sold for \$30,516.49 and various bonds bought for \$30,380.96, see folio 11, leaving a credit balance of \$135.53 which was placed in a savings account at the Marine Bank in the name of the Domicile Funds Savings Account, together with interest derived from the bonds. The interest derived from these bonds amount to \$1,431.50 and interest on the savings account amount to \$6.75 making a total profit from this investment of \$1,573.78. From this amount a Foster Creek Lumber and Manufacturing Co. bond was bought for \$994.00, leaving a credit balance in the savings account December 31st, 1927, of \$579.78. A Gillican Chippley Co. bond was purchased for \$1,005.67 for account of the Library Fund from cash obtained from the General Fund. A \$500.00 Missouri Pacific R. R. Co. bond held by the Society for sometime for account of the Library Fund

was called at \$537.50 and a Sea Board Air Line bond was purchased for \$743.56. The amount paid for this bond was derived as follows:

Proceeds of Mo. Pacific R. R. bond called	\$537.50
Cash obtained from the General Fund....	145.56
Surplus carried over from 1926 from sale of a Mo. Pacific R. R. bond.....	60.50
	<hr/>
	\$743.56

All cash receipts were fully verified and properly recorded. The bonds of the Society are held by the Marine Bank & Trust Co. and the receipts for these bonds are in the bank box at the Marine Bank and were carefully checked by the writer and found correct and in accord with the records in the office.

Respectfully submitted,

L. L. JARREAU,
Auditor.

ASSETS

Domicile Fund

Gold Bonds	\$31,374.96	
Savings Account	579.78	31,954.74

General Fund

Certificates of deposits, 3 ½ %	\$2,000.00	
Cash in bank	463.86	
Petty Cash in office	16.20	
Office Fixtures Dec. 31/26	\$564.63	
Discarded in 1927	3.50	

	<u>\$561.13</u>	
Acquired in 1927	96.99	658.12

		<u>3,138.18</u>
Less Insurance Premiums paid in advance	359.03	2,779.15

Library Fund

Cash in bank	178.04	
Petty cash in office	4.65	
Gold Bonds	7,878.98	
Inventory of fixtures Dec. 31/26	1,856.25	
Less discarded in 1927	4.00	

	<u>1,852.25</u>	
Acquired in 1927	303.20	

2,155.45

Inventory of books

Books on hand at Dec. 31/26	25,334.15	
Purchased in 1927	\$180.27	
Binding in 1927	683.96	
*Subscriptions	100.00	
*Exchange	26.00	
*Gifts	280.00	
*N. O. Med. & Surg JI.	665.00	1,935.23

27,269.38

Medical Relief Fund37,486.50
114.35**Net Worth**

\$72,334.74

*Estimated by Miss Marshall, Asst. Librarian.

DOMICILE FUND**Savings Account**

Difference between the sale of the \$30,000.00 Liberty Bonds and the cost of bonds purchased	\$ 135.53
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Interest received

Pontchartrain Apt. Bonds \$	260.00
Gulfport Hotel Corp. Bond	180.00
Fort Worth Property Bonds	325.00
Grover Stewart Bonds	120.00
Brown Paper Mills	180.00
Hibernia Securities	90.00
Gillican Chippley	30.00
Nalle Buildings	120.00
Marine Mortgage	150.00

\$1,455.00

Less Commissions paid bank	23.50	\$1,431.50
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Less purchase of the following bond.

Foster Creek Lumber & Manufacturing Co. Bond	994.00
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\$ 573.03**Interest on savings allowed by bank**

6.75

\$579.78**RECEIPTS, GENERAL FUND**

La. State Medical Society, Rent	\$ 240.00
La. State Med. Society, Tel. & Tel.	104.75
Banquet Fund	630.00
Dr. Davidson, Tel. ....	.15
Trip to Washington, Miss Marshall re-funded by Library Fund	123.39
Tulane Educational Fund, Chair sold	4.00
Part of expense of graphophone records refunded	30.00
Reminiscence sold	1.00
Certificate of deposits redeemed	1,000.00
Interest on Certificate of deposit re-deemed	13.72
T. P. Talbot, Tel. ....	.87
La. State Medical Soc. Dues	1,963.00
Membership Dues	8,287.75
N. O. Medical & Surg. JI. Tel.	35.95
Insurance Premiums	2,781.95

\$15,216.53

RECEIPTS, LIBRARY FUND

Interest received on investments	
Gillican Chippley Bond.....	\$147.00
Missouri Pacific R. R. Bond....	29.40
Sinclair Cons. Oil	68.60
St. Chas. Ave. Baptist Church	58.80
Holland American Bond.....	58.95
Baptist Convention of the State of Georgia	58.80
Sea Board Air Line.....	19.60
	<hr/>
	\$ 441.15
Other receipts	
Appropriation from Gen'l Fund	900.00
Missouri Pacific Bond called..	537.50
From General Fund and ap- plied on purchase of Sea Board Air Line Bond.....	145.56
	<hr/>
	1,583.06
	<hr/>
	\$2,024.21

CASH

General Fund	
Cash on hand Dec. 31/26..	\$ 1,214.56
Receipts	
Insurance Premiums	\$ 2,781.95
Other receipts, see folio....	12,434.58
	<hr/>
	15,216.53
	<hr/>
	\$16,431.09
Less Disbursements	15,967.23
	<hr/>
	463.86
Cash on hand Dec. 31/27..	
Library Fund	
Cash on hand Dec. 31/26..	928.09
Receipts	2,024.21
	<hr/>
	2,952.30
Less Disbursements	2,774.26
	<hr/>
	178.04
Cash on hand Dec. 31/27..	
	<hr/>
Total cash on hand Dec. 31, 1927, both funds.....	\$ 641.90

INVENTORY OF FIXTURES

General Fund

1 Steel Filing Cabinet	\$ 35.00
3 Cardboard Cases	3.00
1 Safe	30.00
4 Wooden Tables	7.00
2 Flat Desks	25.00
1 Addressograph	40.00
1 Addressograph File	10.00
1 Typewriter	83.03
2 Swivel Chairs	10.00
2 Chairs	12.00
1 Directors' Table	25.00
1 Gavel and Block	10.00
1 Stove	38.40
1 Protectograph	20.00
1 Clock	7.50
1 Black Board	75

2 Fire Extinguishers	12.00
1 Brass Cuspidor	1.50
5 Waste Baskets	2.50
1 Ballot Box	1.50
1 Multigraph	50.00
1 Multigraph Stand	4.00
1 Step Ladder	1.50
1 Awning	12.65
1 Hat Rack	1.50
1 Globe Fixture	13.95
1 Table Lamp	11.50
1 Translux Screen	90.85
1 Door Check	1.00

\$561.13

Acquired in 1927:

1 Chair	\$19.50
1 Addressograph	77.49
	<hr/>
	96.99
	<hr/>
	\$658.12

INVENTORY OF BOOKS

Library Fund

Books on hand Dec. 31/26....	\$25,334.15
Purchased in 1927.....	\$180.27
Binding in 1927.....	683.96
*Subscriptions, 1927	100.00
*Exchange	26.00
*Gifts	280.00
*N. O. Med. & Surg. Journal	665.00
	<hr/>
	1,935.23
	<hr/>
	\$27,269.38

*Estimated by Miss Marshall, Asst. Librarian.

INVENTORY OF FIXTURES

Library Fund

3 Wooden Tables	9.00
9 Chairs	9.00
24 Rows Wood Shelves.....	150.00
1 Ink Well .....	.50
15 Rows Steel Shelves.....	1,196.28
1 Catalogue Case & Stand	125.00
1 Book Truck	50.00
1 Flat Top Desk	30.00
1 Typewriter	25.00
1 Steel Filing Cabinet.....	35.00
Cardboard Boxes	100.00
Filing Boxes	45.35
Lights	18.42
1 Kardex Filing Cabinet....	43.20
1 Swivel Chair	15.50
	<hr/>
	\$1,852.25

Acquired in 1927:

5 Sections Steel Shelves....	118.00
1 Nine Drawers Catalogue Case	120.60
2 Oscillating Fans and in- stalling same	64.60
	<hr/>
	303.20
	<hr/>
	\$2,155.45

EXPENDITURES, GENERAL FUND

Salaries		
Marshall, Miss, Asst. Lib.....	\$1,800.00	
Maier, Miss, Asst. Secty.....	1,200.00	
Lathrop, Miss, Stenographer	50.00	
Coleman, Carl, Porter.....	600.00	
Homer, Alfred, Porter.....	60.00	
Craig, Chas.	60.00	
Jarreau, L. L.	35.00	\$ 3,805.00
Miscellaneous		
Petty Cash	255.00	
Telephone and Telegraph....	267.70	
Insurance Premium	17.50	
Heat and Light.....	69.57	
Ice	48.65	
N. O. Med. & Surg. Jl.....	300.00	
Stationery & Off. Supplies..	187.35	
Stencils	4.00	
Addressograph	77.49	
Chair, One	19.50	
Floral Offerings (Deceased Members)	46.12	
Rental of Bank Box.....	5.00	
Library Appropriation	900.00	
Miss Marshall, Trip to Washington	123.39	
Times-Picayune, Advertising	7.92	
Window Panes	5.00	
Keys for Safe	4.00	
Phonograph Records	60.00	
Repairing Elec. Fans.....	15.75	
Typewriter Repairs	10.64	
Dr. M. J. Gelpi, (Chaille Memorial Oration)	250.00	

Dr. H. T. Simon (Honorary)	122.00	
Long Life Week, Exhibit Exp.	60.00	
Harcot Motion Picture Co..	25.00	
Dr. Paul Gelpi, Banquet.....	630.00	
Dr. H. Popkins, Excess dues	1.50	
Election Commissioners	10.00	
Dr. R. VanWart, excess dues	2.00	
Part payment of Sea Board Air Line Bond	145.56	
Gillican Chipley Bond.....	1,005.67	
Am. National Life Ins. Co.	2,422.92	
La. State Medical Society....	1,963.00	
Whitney Bank 3½ % Certificates	3,000.00	
Dr. Gelpi, Exp. Installation Meeting	100.00	
		12,162.22
		\$15,967.22

DISBURSEMENTS, LIBRARY FUND

Magazines	\$ 583.22
Research and Abstracts	21.00
Dues	10.00
Drayage and Express	70.61
Binding	683.90
Petty Cash	55.00
Books	180.22
Fixtures	303.22
Sea Board Air Line Bond.....	743.50
Trip to Washington, Miss Marshall.....	123.39
	\$2,774.22

DETAIL OF SALE OF THE \$30,000.00 LIBERTY BONDS—DETAIL OF BONDS BOUGHT FROM RETURNS OF SAID SALE.

Sale of Liberty Bonds				
Date	Par Value	Price	Interest	Total
2/ 8/27	10,000.00	100.23/32	77.99	\$10,169.87
2/28/27	3,000.00	100.20/32	36.48	3,055.23
2/10/27	3,000.00	100.22/32	30.10	3,050.73
2/ 8/27	7,000.00	100.7187	28.59	7,118.90
2/11/27	2,000.00	100.19/32	20.54	2,032.42
2/10/27	2,000.00	100.6875	20.06	2,033.81
2/12/27	2,000.00	100.685	20.92	2,034.62
4/ 5/27	1,000.00	100.14/32	16.53	1,020.91
	\$30,000.00			\$30,516.49

BONDS PURCHASED FROM RETURNS OF SALE OF LIBERTY BONDS.

Date	Par Value	%	Securities	Price	Interest	Total Cost
2/ 8/27	\$2,000.00	6½	Fort Worth Properties	100.	29.97	\$2,029.97
2/28/27	3,000.00	6½	Fort Worth Properties	100.	57.40	3,057.40
2/ 8/27	3,000.00	6	Hotel Markham	98.	78.50	3,018.50
2/ 9/27	5,000.00	6	Marine Mortgage	100.	5.83	5,005.83
2/10/27	3,000.00	6	Hibernia Securities	100.88	19.50	3,045.90
2/ 9/27	2,000.00	6	Nalle Office Building	100.	12.33	2,012.33
2/ 8/27	2,000.00	6	Grover Stewart	100.	42.33	2,042.33
2/ 8/27	3,000.00	6	Brown Paper Mills	100.	33.50	3,033.50
2/11/27	2,000.00	6½	Pontchartrain Apts.	100.	57.78	2,057.78
2/10/27	2,000.00	6½	Pontchartrain Apts.	100.	57.42	2,057.42
2/12/27	2,000.00	6	Nalle Office Building....	100.	14.33	2,014.33
4/ 5/27	1,000.00	6	Gillican Chipley Co.	99.	15.67	1,005.67
	\$30,000.00					\$30,380.96

Sale Price of Liberty Bonds	\$30,516.49
Cost of various bonds (above)	30,380.96
Profit	\$ 135.53

BONDS

Domicile Fund

SECURITIES	Receipt Number	Rate	Par Value	Cost with Interest
Fort Worth Properties	3056	6 ½	\$5,000.00	\$ 5,087.37
Hotel Markham	3054	6	3,000.00	3,018.50
Marine Mortgage	3053	6	5,000.00	5,005.83
Hibernia Securities	3510	6	3,000.00	3,045.90
*Nalle Office Building	3577	6	4,000.00	4,026.66
Grover Stewart	3055	6	2,000.00	2,042.33
Pontchartrain Apartments	3057	6 ½	4,000.00	4,115.20
Gillican-Chipley	3510	6	1,000.00	1,005.67
Brown Paper Mills	3057	6	3,000.00	3,033.50
Foster Creek Lumber & Mfg. Co...	3245	6	1,000.00	994.00
				<u>\$31,374.96</u>

*The Nalle Office Building Bonds have since been called and the following bonds acquired:

	Par Value
Cloverland Dairy Product Co.	\$2,000.00
B. G. Carbajal, Inc.	1,000.00
Interstate Hotel Co.	1,000.00

Library Fund

SECURITIES	Receipt Number	Rate	Par Value	Cost with Interest
Sinclair Oil Corporation	3249	6	\$1,000.00	\$1,015.19
Holland American Line	3051	6	1,000.00	933.00
Ex. Convention of the Baptist Com. of Georgia.....	2174	6	1,000.00	1,019.50
St. Charles Ave. Baptist Church...	2174	6	1,000.00	1,024.50
Gillican Chipley	2694	6	1,000.00	1,151.23
Gillican Chipley	2841	6	1,000.00	986.33
Gillican Chipley	3058	6	1,000.00	1,005.67
Seaboard Air Line	3257	6	1,000.00	743.56
				<u>\$7,878.98</u>

SURPLUS

For Period January 1st to December 31st, 1927

Receipts:

General Fund, see folio 3.....	\$15,216.53	
Library Fund, see folio 4.....	2,024.21	\$17,240.74

Disbursements:

General Fund	\$15,967.23	
Less Capital Investment:		
Office Fixtures, see 6.....	\$ 96.99	
Gillican Chipley Bond	1,005.67	
Certificates of deposit	2,000.00	3,102.66
		12,864.57
Library Fund	2,774.26	
Less Capital Investment:		
Binding	683.96	
Books	180.27	
Fixtures	303.20	
Sea Board Air Line Bond.....	743.00	1,910.43
		863.83
		<u>\$13,728.40</u>
		<u>\$ 3,512.34</u>

Less Insurance Premium collected in advance:

Premiums Collected	2,781.95	
Paid National Life Insurance Co...	2,422.92	359.03

Net Surplus for the year..... \$ 3,153.31

Total Capital Investment:	
General Fund	\$3,102.66
Library Fund	1,910.43
	<hr/>
	\$5,013.09

The amount of \$5,013.09 was derived as follows:

Above surplus	\$3,153.31
Insurance premium	359.03
Cash, General Fund	750.70
Cash, Library Fund	750.05
	<hr/>
	\$5,013.09

MEMBERSHIP

ADMISSIONS AND RESIGNATIONS

ADMISSIONS—ACTIVE MEMBERS

1. Alexander, L. W.	12. Longo, D. V.
2. Anderson, G. A.	13. Maurer, E. H.
3. Cohen, Sam C.	14. Ochsner, Alton
4. Collier, Geo. B.	15. Oliphant, T. H.
5. Devron, L. E.	16. Newhauser, Mayer
6. Duffy, Morris J.	17. Palermo, Jos. P.
7. Dismuke, Lily L.	18. Jung, T. A.
8. Eagleton, John T.	19. Sanders, John T.
9. Efron, B. G.	20. Scott, L. C.
10. Gillespy, R. R.	21. Vidrine, Clifford
11. Hardin, Geo. L.	22. Weiner, Elias
* Neal, Paul R.	† Doussan, J. E.

*Elected and never qualified.

†Reinstated and never qualified.

ADMISSIONS—INTERNE MEMBERS

1. Durance, F. Y.	5. Roeling, W. H.
2. Kuhn, Lloyd J.	6. Saiewitz, Sam B.
3. Long, J. W.	7. Weiss, Carl A.
4. McComisky, A. J.	8. Meyer, Paul R.

ADMISSIONS—ASSOCIATE MEMBERS

1. Hava, Walter C.	3. Popkins, H. J.
2. Meyer, H. H.	4. Laurens, Henry

HONORARY MEMBERSHIP

1. Knolle, W. H.	2. Rabbi M. Silber
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RESIGNATIONS

1. Crebbin, J. T.	4. Heninger, B. R.
2. *Cully, P. G.	5. Lisenby, J. O.
3. Durrance, F. Y.	6. Mendelson, R. W.

*Interne.

REMOVALS

1. Garnier, W. V.	3. Graves, W. E.
2. Gillespy,	

DECEASED MEMBERS

1. Adolph, C. A.—December 11th, 1927.
2. Bohne, P. W.—March 31st, 1927.
3. Moss, E.—March 22nd, 1927.
4. McCutcheon, P. B.—May 12th, 1927.
5. Parham, F. W.—May 6th, 1927.
6. Provosty, L. M.—September 9th, 1927.
7. Rich, F. G.—May 12th, 1927.

SIMULTANEOUS CHOLECYSTOGRAPHY AND DETERMINATION OF HEPATIC FUNCTION.—Simultaneous

cholecystography and the determination of the excretory function of the liver, as is done according to the methods of Rosenthal and others, is possible with the use of sodium phenoltetraiodophthalein. W. H. Cole, Glover H. Copher and Evarts A. Graham, St. Louis, use larger amounts of this dye (to accomplish the visualization of the gallbladder simultaneously) than those ordinarily employed in hepatic functional tests and are convinced that the determination of the excretory function of the liver by this means gives very valuable information in the differentiation between obstructive jaundice due to malignant disease and that due to stones and inflammations. They found that patients suffering from carcinoma of the liver, whether primary or metastatic, revealed a relatively low retention, the average figure being 28 per cent one-half hour after the injection. The ability to differentiate between jaundice caused by carcinoma of the liver and jaundice caused by stone in the common duct is even more accurate if there is opportunity to observe the patient over a period of several days. If the jaundice caused by obstruction of the common duct by stone is present over several days in equal or increasing degree, the amount of retention of dye will show a significant increase during the interval. On the other hand, if the jaundice is produced by carcinoma of the liver or by carcinoma of the pancreas, the amount of variation will not show any appreciable change. Perhaps the greatest value obtained

from the readings on hepatic function in the series is the determination of operability. Of the patients operated on in this series, in whom hepatic function had previously been determined, two died following cholecystectomy and one died following gastro-enterostomy for ulcer. On one was jaundiced—a patient with obstruction of the common duct by stone for which a cholecystectomy and cholecystostomy was performed. The amount of retention of each of these three patients was 70, 90 and 75 per cent respectively. These figures represent a retention as high as or higher than that found in any of the other patients on whom operation was performed in this series. The authors feel, therefore, that any patient showing a high retention of dye following the injection of phenoltetraiodophthalein is a poor operative risk and the minimum amount of operative work should be done. The patient condition should be reinforced by such measures as intravenous injections of dextrose and transfusions. Evidence is encountered which leads to the belief that a very marked degree of hepatic injury is necessary before the delayed excretion of the dye by the liver will affect the production of the shadow of the gallbladder. Normal cholecystograms have been observed when the retention of the dye was as high as 60 or 70 per cent one-half hour after injection of the dye. It is true, however, that in the majority of patients with retention as great as this pathologic cholecystograms were obtained, but this is to be expected since operation has revealed either cholecystitis or edema of the gallbladder of severe grade.—J. A. M. A., April 7, 1928.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

Dr. Elijah Madison Ellis, 61, prominent Crowley physician and surgeon, and past president of the State Medical Society, died at 1:30 P. M., August 9, 1928, at the Crowley Sanitarium, following a two weeks' illness with pneumonia.

Funeral services were held at 3 P. M., August 11, from the First Methodist Church, interment followed in the Crowley cemetery.

His death ended a constant fight made by doctors and nurses since he became very ill following a trip to his farm near Gueyenne two weeks ago. For the past ten days hope for his recovery was actuated and wavered, until August 10, when a turn more serious than any preceding resulted in the announcement that attending physicians had abandoned hope.

Respected for his professional standing, and recognized as one of the leading surgeons of the state, Dr.

Ellis' passing brought from local doctors who had known him intimately expressions of the highest regard and of regret at the loss the community had suffered.

His election as president of the State Medical Society in 1925-1926 was pointed to as evidence of his standing among the physicians of Louisiana, while locally his work in his practice as a physician as well as in public health and civic projects was recalled by many. Not the least among the things referred to was the Crowley Sanitarium, which he established about 15 years ago, the present institution in the northeastern part of the city having been erected after fire had destroyed the one in South Crowley.

For about thirty years Dr. Ellis had been a resident of Crowley, having come to this city to begin his practice within a few years after his graduation from medical school. He was born at

Poplar Creek, Montgomery County, Mississippi, on December 14, 1866, the son of Elijah L. and Elizabeth Thrailkill Ellis. After his preliminary education had been received, he attended Memphis Medical College, from which he was graduated in 1895.



ELIJAH MADISON ELLIS

Dr. Ellis is survived by his widow, a son, Earl Ellis, and a daughter, Mrs. H. Gordon Brunson, two brothers, J. C. Ellis of New Orleans, and J. F. Ellis of West Point, Miss., a half brother, E. G. Ellis, of Poplar Creek, Miss.; three sisters, Mrs. P. R. Brown, of West Point, Miss.; Mrs. J. W. Nunnery and Mrs. J. P. Matthews of Crowley, in addition to other relatives.

Dr. William Scheppegrell, president of the Audubon Park Commission and the New Orleans Zoological Society, and one of the outstanding physicians and civic leaders of the city, died at

1:30 P. M., Thursday, August 9, 1928, following an operation at Mercy Hospital.

Requiem mass was conducted at the Church of the Holy Name of Jesus, Loyola University, at 10 A. M., August 10. The Rev. John J. Navin, S. J., officiated. Interment was in Metairie Cemetery.

Scion of an old South Carolina family, Dr. Scheppegrell was born in Hanover, Germany, in 1860, while his parents were on a visit to that country. He grew up in Charleston and attended the College of Charleston, where he received the degree of master of arts. He then attended the Medical College of South Carolina, receiving the degree of doctor of medicine in 1882. He also took extensive work in electrical engineering.

In 1882 he married Signorina Jessie Agatha Gambati of Venice, Italy. They had one child, Agatha, now Mrs. N. F. Thiberge of New Orleans. Mrs. Scheppegrell died in 1921.

After the Charleston earthquake of 1886, Dr. Scheppegrell decided to move to New Orleans, coming here in 1890. He brought a letter of introduction to Dr. Arthur de Roaldes, founder of the Eye, Ear, Nose and Throat Hospital, and his expert work in repairing a faulty electrical hospital appliance soon after his arrival in New Orleans induced Dr. de Roaldes to offer him a position on the hospital staff. He served as chief surgeon on the staff until 1893, when he went into private practice.

In addition to his medical work, Dr. Scheppegrell was an outstanding figure in civic enterprises. He was president of the Audubon Park Commission for about twelve years and president of the Zoological Society for the same length of time. He held both of these offices at the time of his death.

In medical circles Dr. Scheppegrell occupied a notable position. In addition to his affiliation with the Eye, Ear, Nose and Throat Hospital, he was chief of the hay fever clinic and the eye, ear, nose and throat clinic of Charity Hospital. Besides writing a number of books and scientific articles on hay fever and troubles of the eye, ear, nose and throat he was the inventor of several appliances widely used in hospital clinics.

He served as president of the American Academy of Ophthalmology and Otology; president of the American Hay Fever Association, vice-president of the American Laryngological, Rhinological and Otological Society, president of the Federation of Catholic Societies, and president of the St. Cecilia Choral Society, and an associate editor of "The Annals of Otology, Rhinology and Laryngology." His articles appeared in many medical periodicals.

Dr. Scheppegrell was also the author of several books, the most widely known of which are "Hay Fever and Asthma, Cause, Treatment and Cure," "Electricity in Diseases of the Nose, Throat and Ear," "Non-Malignant Tumors of the Throat," and others.

Besides his daughter, Mrs. Thiberge, who is the wife of Dr. Scheppegrell's medical associate, he is survived by one sister, Mrs. Wilhelmina Keppler of New York City; a nephew, William Scheppegrell, manager of the Audubon Park swimming pool; two grandchildren and a number of relatives in Charleston and San Francisco.

SHREVEPORT MEDICAL SOCIETY RADIO LECTURES.

In line with the general thought as seemingly existent among the medical profession today regarding the education of the public on medical

matters, the Shreveport Medical Society has arranged and have now in operation a systematic course of lectures which are being broadcast over Radio Station KWKH of Shreveport and published in the Shreveport Times.

This work is being done under auspices of the Shreveport Medical Society with a whole-hearted co-operation of the broadcasting station KWKH owned and operated by Mr. W. K. Henderson of Shreveport and the Shreveport Times.

The Shreveport Medical Society is glad to report to the profession through the columns of the Journal that they have met no opposition whatever in the endeavor, but on the other hand co-operation from every source. The Times and Mr. Henderson, owner of KWKH, have been unusually liberal in donating the space and time, and the Shreveport Medical Society is sure the profession at large feels the appreciation for the service as they of the Shreveport Medical Society do.

The following is an outline of their program for the first three months of which have already been delivered.

Program broadcast between 10:00 and 10:15 P. M.:

- 6/15/28—Medical Ethics. Dr. J. E. Knighton.
- 7/15/28—Diseases of Children. Dr. Robert Lucas.
- 8/15/28—Tuberculosis. Dr. Chas. Gowen.
- 9/14/28—Cancer. Dr. J. C. Willis.
- 10/12/28—Cardio Renal Diseases. Dr. W. Norfleet.
- 11/16/28—Acute Respiratory Diseases. Dr. J. Bodenheimer.
- 12/14/28—Skin Cancer. Dr. C. B. Erickson.
- 1/18/29—Diseases of Children. Dr. M. Picard.
- 2/15/29—Diseases of Women. Dr. Louis Abramson.
- 3/15/29—Home Hygiene. Dr. W. J. Sandidge.
- 4/19/29—Gastro Intestinal Diseases. Dr. T. Lloyd.
- 5/17/29—Diseases Ear, Eye Nose and Throat. Dr. J. L. Scales.

The quarterly meeting of the Lafourche Valley Medical Society was held at Donaldsonville on August 8, at the Elks Home.

The attendance in point of numbers of the local membership was gratifying, and the occasion was graced by the presence of several honorary members of New Orleans.

The scientific end of the program was taken up by the presentation of two papers: Surgery of the nasal Region under Local Anaesthesia, by Dr. W. Allen. Pyelitis, in Infancy and Early Childhood, by Dr. D. G. Lemkowitz.

The next quarterly meeting of the society will be held at Houma on Wednesday, November 14.

It has pleased the many friends of Dr. H. E. Menage to learn that at a recent meeting of the Board of Administrators of the Tulane University of Louisiana approved the recommendation of the Executive Faculty of the Graduate School of Medicine that he be appointed Professor Emeritus of Dermatology, effective as of the close of the session 1926-1927.

Post-Graduate Lectures in English, under direction of the Paris University Medical School.

Ten lectures with roentgenologic projections and anatomical specimens, concerning diseases of the bronchi, under direction of Doctor Sergent, Professor of Propedeutic Medical Clinic, Charite Hospital (October 29 to November 3, 1928)—Fees: 500 francs—\$20.00.

Diseases of the heart and vessels: 9 lessons by Doctor Clerc, associate professor, physician to the Lariboisiere Hospital (October 20 to 30, 1928)—Fees: 500 francs—\$20.00.

Peuriculture and diseases of children: 24 lectures and practical demonstrations by Doctor Armand-Delille, physician to Herold Hospital, and Doctor Weill-Halle, physician to Charite Hospital (October 8 to 20, 1928)—Fees: \$1,000 francs—\$40.00.

Surgery of the digestive tract and liver with operative demonstrations and operations on the dog, under the direction of Doctor Gosset, professor of the Surgical Clinic at the Salpetriere (October 15 to 20, 1928)—Fees: 500 francs—\$20.00

Ophthalmology and Oto-Rhino-Laryngology: 10 lessons by Doctor Morax, ophthalmologist to the Lariboisiere Hospital, and 10 lessons by Doctor Lemaitre, associate professor, oto-rhino-laryngologist to the Saint-Louis Hospital (October 2 to 26, 1928)—Fees: 500 francs for each series of 10 lessons—\$20.00.

A certificate, signed by the Professor and the Dean of the Faculty of Medicine of Paris, will be given after each course to every doctor who has attended it regularly.

For further information and detailed program of each course, apply to the Secretary of the "Association pour le Developpement des Relations Medicales," Salle Bechard, Faculte de Medecine, 12 rue de l'Ecole-de-Medecine, Paris (6e).

Other courses in English may be arranged by applying to the Secretary of the above association.

Pamphlet of information on file at the office of the Orleans Parish Medical Society.

Programs of the Annual Meeting of the Southern Tuberculosis Conference to be held in Biloxi, September 12 to 15, at the Conference Headquarters, Buena Vista Hotel, are being distributed by the Tuberculosis and Public Health Association of Louisiana, which is one of the thirteen affiliated state organizations. The other states represented in the Conference are: Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Texas, Mississippi, Tennessee, Kentucky, Arkansas, and Oklahoma.

Miss Gertrude Rando, executive secretary of the Tuberculosis & Public Health Association of Louisiana, will represent Louisiana on the Speakers' Program. She has been selected for the honor to respond in behalf of the Conference to the Address of Welcome by Hon. John J. Kennedy, Mayor of Biloxi.

The program will also include the Southern Sanatorium Association. Among the major subjects on the program are: "Management of the Tuberculosis Problem in Children" and "Tuberculosis in the Negro".

"The Southern Tuberculosis Conference provides an opportunity for Tuberculosis workers, public health officials, physicians, nurses and friends of the great health movement to meet in annual session to discuss the latest methods in the prevention and treatment of Tuberculosis" said Miss Rando. "The matter of Memberships in the Conference is a responsibility for each state secretary and we ask our friends to communicate with us with regard to membership and attendance at the Conference, at State Association Headquarters, 535 St. Charles Street, New Orleans, or 'phone Raymond 1741.

GERTRUDE RANDO,
Executive Secretary.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

Dr. B. S. Guyton of Oxford has returned from Europe where he spent some time in post-graduate work.

The Staff Meeting of the Vicksburg Sanitarium was held on August 10th. The program was as follows:

1. Carcinoma of the Stomach, Dr. A. Street.
2. Acute Lymphatic Leukemia, Dr. G. M. Street.
3. Intestinal Obstruction with Clinical Tubercular Peritonitis," Dr. J. A. K. Birchett, Jr.
4. Pernicious Anemia, Dr. L. S. Lippincott.
5. Meningococcic Meningitis, Dr. L. J. Clark.
6. Treatment of Vincent's Angina, Dr. C. J. Edwards.
7. Oblique Fracture of the Middle Third of Humerus, Dr. H. H. Johnston.

The regular monthly meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held in Vicksburg on August 14. The following program was presented:

1. Some Unique Cases of a Country Doctor, Dr. W. H. Scudder.
2. Some Unoriginal Remarks on Mastoiditis, Dr. E. F. Howard.
3. Carcinoma of the Stomach, Dr. A. Street.

At the July meeting, Dr. Hugh H. Johnston of Vicksburg was elected to membership.

Dr. J. C. McNair of Fayette, Miss., is at present doing post-graduate work in diseases of the chest at the Mississippi State Sanitorium.

The meeting of The Interstate Post Graduate Medical Association of North America will be held at Atlanta, Georgia on October 12 to 19, 1928, with headquarters at the Auditorium Armory. The preliminary announcement gives promise of a very attractive program. The following names listed are sufficient evidence of the type of papers and discussions to be presented:

Ayer, Wardner D., Syracuse, N. Y.
Beck, Harvey G., Baltimore.
Bevan, Arthur Dean, Chicago.
Bloodgood, Joseph C., Baltimore.
Bourne, Aleck W., London, England.
Brooks, Harlow, New York.
Burrell, Lancelot S., London, England.
Buzzard, Sir Farquhar, London, England.
Cannon, W. B., Cambridge, Mass.

Case, James T., Battle Creek, Mich.
Cassidy, Louis L., Dublin, Ireland.
Christian, Henry A., Boston.
Crookshank, Francis G., London, England.
De Buys, Lawrence R., New Orleans.
Didgeon, Leonard, London, England.
Dundas-Grant, Sir James, London, England.
Dunhill, Thomas P., London, England.
Elliott, Charles A., Chicago.
Erdmann, John F., New York.
Evans, J. Howell, London, England.
Finney, John M. T., Baltimore.
Forsyth, David, London, England.
Fox, L. Webster, Philadelphia.
Graham, Evarts, A., St. Louis.
Haggard, William D., Nashville, Tenn.
Hinman, Frank, San Francisco.
Horsley, J. Shelton, Richmond, Va.
Ibbotson, William, London, England.
Joslin, Elliott P., Boston.
Lahey, Farnk H., Boston.
Lewis, Dean D., Baltimore.
Leyton, Otto F., London, England.
Low, G. Carmichael, London, England.
Lynch, Kenneth M., Charleston, S. C.
MacAuley, Charles J., Dublin, Ireland.
Marlow, F. W., Toronto, Canada.
McDonagh, James E., London, England.
McElroy, James B., Memphis, Tenn.
McLester, James S., Birmingham, Ala.
Miller, C. Jeff, New Orleans.
Moorehead, T. Gillman, Dublin, Ireland.
Muller, George P., Philadelphia.
Naffziger, Howard C., San Francisco.
Oliver, Sir Thomas, Newcastle-upon-Tyne, England.
Orr, Thomas G., Kansas City, Mo.
Pearson, Wilfred, London, England.
Polak, John O., Brooklyn, New York.
Roberts, Stewart R., Atlanta, Georgia.
Shaw, Maurice E., London, England.
Smith, Elsworth S., St. Louis, Mo.
Thompson, A. Ralph, London, England.
Thursfield, Hugh, London, England.
Ward, R. Ogier, London, England.
Warthin, Alfred S., Ann Arbor, Mich.
Waugh, George E., London, England.
Wheeler, William I., DeCourcy, Dublin, Ireland.
White, William A., Washington, D. C.
Witherspoon, Jack, Nashville, Tenn.
Wyand, Stanley, London, England.
Young, Hugh H., Baltimore.
Deaver, John B., Philadelphia.
Mayo, Charles H., Rochester.
Crile, George W., Cleveland.
Barker, Lewellys F., Baltimore.

Cabot, Hugh, Ann Arbor
Core, Donald, Manchester, England

The officers of the association are:

PRESIDENTS OF CLINICS

Mayo, William J., Rochester, Minn.
Mayo, Charles H., Rochester, Minn.

PRESIDENT

Barker, Lewellys F., Baltimore.

PRESIDENT-ELECT

Deaver, John B., Philadelphia.

MANAGING-DIRECTOR

Peck, William B., Freeport, Ill.

EXECUTIVE SECRETARY AND DIRECTOR OF EXHIBITS

Henes, Edwin, Jr., Milwaukee, Wis.

TREASURER AND DIRECTOR OF FOUNDATION FUND

Langworthy, Henry G., Dubuque, Iowa.

SPEAKER OF THE ASSEMBLY

Brown, George V. I., Milwaukee, Wis.

The association will be the guests of the Full-county Medical Association and of the Medical Association of Georgia. Dr. Marion T. Benson of Atlanta is general chairman of the local committee.

It is the policy of this association to avoid "sections" and to offer the entire programs to one large audience.

REDUCTION IN INCIDENCE OF INFECTIOUS DISEASES IN MISSISSIPPI.

In Mississippi, during the ten-year period 1916-1926, there have been the following decreases in the incidence of infectious diseases:

74% decrease in number of cases of typhoid fever.

45% decrease in number of cases of malaria.

51% decrease in number of cases of tuberculosis.

54% decrease in number of cases of smallpox.

Human beings contract infectious diseases directly or indirectly from other human beings or from animals. From a sanitary point of view, every individual in a community represents a potential source of infection for others.

The reductions shown above are due in great part to modern methods of diagnosis employed by physicians, and public health supervision rendered by the Mississippi State Board of Health and, in the case of counties having full-time health work, by the local health department. People living in counties having full-time health service are enjoying a protection given them by the work of the health department which is not available in counties not maintaining full-time health service.

Disease carriers are a problem which plays a significant role in the control of infectious diseases. A public health organization cannot fulfill its function merely by being ready to suppress outbreaks of disease as soon as the first cases are recognized. Protection against these carriers is only possible by so organizing the community life that the everyday contact of individuals with infectious materials may be reduced to the minimum, adequately supervising mosquito control work, milk and water supplies, proper disposal of human waste, and other phases of sanitation, and by so influencing the habits, nutrition, occupation, etc. of the community that the average power of resistance may be raised to and maintained at the highest possible level.

A full-time health department is a reasonably dependable safeguard which may be thrown about the people of a county to insure a reduction in the incidence of unnecessary sickness and deaths.

CLINICAL DIAGNOSIS OF HUMAN INTESTINAL PROTOZOA.

During the past ten years our knowledge of the intestinal protozoa of man has been revolutionized. Instead of diagnosing an intestinal infection as due to "monads," "cercomonads," "ciliated monads" or "flagellates" it is now possible to identify the organisms present without much difficulty. Some of the intestinal protozoa of man are apparently so rare that a physician would ordinarily never encounter them. Most of the individuals infected with protozoa are carriers and may remain infected for years. The various species are not antagonistic to one another, hence one person may carry two or more species at the same time. The diagnosis of intestinal protozoa requires the collection of fresh faeces, dental scraping and urine. No positive diagnosis should ever be made without finding the protozoa in the samples collected. Many species can in most cases be readily identified in the living condition, but in cases of doubt it is necessary to kill and stain

the motile stages (trophozoites) or cysts. Wet smears are satisfactory when many specimens are present; but concentration and culture methods have been devised to aid in diagnosis when the protozoa are few in number. Serological tests have been suggested for the diagnosis of amebiasis, but are not well enough worked out to be of practical use. Only three of the fifteen well-authenticated species of intestinal protozoa are known with certainty to be pathogenic to man—the ameba, coccidium and the ciliate. Most persons with intestinal protozoa do not show symptoms. Diarrhea and dysentery are the most frequent symptoms. Infections of the vagina or urinary tract may be accompanied by the presence of blood and abnormal conditions in the production of mucus. Oral diseases are frequently accompanied by infections with mouth-inhabiting protozoa. The diagnosis of these various diseases should always be made on the basis of the finding of the parasite rather than on the character of the symptoms.—International Clinics, December, 1927.

BOOK REVIEWS

Recent Advances in Tropical Medicine: By Sir Leonard Rogers, C. I. E., M. D., B. S. (Lond.), F. R. C. P., F. R. C. S., F. R. S. London, J. & A. Churchill. 1928. pp. 398.

This is a small book full of useful information, well presented. Here are outlined, free from cumbersome details, the wonderful researches of the workers in the tropics. The reader cannot but admire the brilliant results of men working under adverse climate with few facilities of our modern laboratory. These the editor has gathered and after adding his own observations has arranged in a palatable and assimilable book.

We of the South should particularly feel interested in this work as here are given a well deserved place to the contributions from Bass, Hopkins and Guthrie. Moreover, daily we are meeting with a larger assortment of imported diseases—hence the necessity of finding at a glance the last word in these affections.

In numerous instances vaccine is recommended for treatment and skin tests for diagnostic use. Many new items are found such as: The non-surgical treatment of amebic abscesses with emetin; the combination of carbon tetrachloride and oil of chenopodium in controlling intestinal parasites; the great value of stovarsal in dysentery and of arsenic in yaws; the specific action of trypanemide in sleeping sickness and the role of the cheopis flea in plague.

The chapter which appealed to the reviewer the most was that on malaria. The intravenous value of quinine over the intramuscular is accepted and the place of arsenic, including the newer preparations, as the great repairer and not as an antiperiodic is clearly set forth. Black-water fever being an expression of frequently recurring malaria, the author points out the necessity of care and thoroughness in handling the initial attack; he recommends quinine here only when the plasmodia is found in the attack. Spirochete as a direct or indirect cause of the hemoglobinurea is discarded and the theory of an hemolysin being formed in the blood in chronic cases is accepted as tenable.

The book is not only instructive but entertaining and encourages the reader to gather the loose threads of the new theories and to work them into the pattern himself.

NARCISSE F. THIBERGE, M. D.

Crawford W. Long: By Frances Long Taylor. New York, Paul B. Hoeber, Inc. 1928. pp. 237.

In a small country village of Georgia in the early part of the year 1842, a country physician, Crawford W. Long, first used ether for the re-

moval of a small tumor. The discovery of Long was not made known to the world at the time. In 1846 a Boston dentist by the name of Morton, at the instigation of the famous surgeon Bigelow, during an operation at which there was a considerable number of doctors in attendance, used ether to anesthetize the patient. Long's discovery was unknown to the medical world at the time. Morton, working in a large medical center, was enabled to put before physicians in general immediately the report of his discovery. As the result of Long's tardiness and Morton's promptness, the past fifty years has seen much controversy as to whom belongs the credit of priority in the use of ether. It seems definitely settled now that to Long and to Long alone, belongs the honor of the discovery, although there are still skeptics, notably in New England, who would give to Morton the great place in medicine which the discovery of ether as an anesthetic deserves. In order to settle the question definite and for all times, Frances Long Taylor has reinvestigated the whole subject of the first use of ether and brings out in the present volume proof which is so definite that there can be no question that Long really is the man to whom praise should be given. The book is not merely a compilation of evidence put forth categorically and dogmatically, but is an extremely interesting, beautifully written life of the man to whom not only the South in particular but the whole civilized world owes much.

J. H. MUSSER, M. D.

The Mind of the Growing Child: Edited by Viscountess Erleigh. London, Oxford Univ. Press. 1928. pp. 229.

Here is a little book whose sixteen chapters have been written by fourteen different authors, which should be read by everyone who has anything to do with a child, be he parent, teacher or physician.

Such topics as the psychology of infancy, problems in family adjustment, the backward child, problems of school age and the effect of sunlight on the psychology of the child are of paramount importance in the understanding of children. These, among other subjects, are briefly and clearly discussed in language that anyone can understand.

The reviewer is of the opinion that if this book were placed in the hands of every mother and father with intelligence enough to read it, our future generations would indeed be a superior race.

L. VON MEYSENBUG, M. D.

Technic of Child Analysis: By Anna Freud. New York, Nervous and Mental Disease Publishing Co. 1928. pp. 59.

A series of lectures given by Anna Freud, the daughter of the famous Freud, for the purpose of making clear the problems which present themselves to psychoanalysts who deal with children. It is clearly brought out that the methods used for adults are not applicable to the child and herein lies the chief cause for failure in the past. The author in this little monograph gives her methods which are vividly explained by case histories. This book is recommended to all who are interested in child psychology, as it gives much valuable information not only to those who are interested in child analysis, but also to those who come into contact with the problem child.

JULIAN GRAUBARTH, M. D.

Rene Theophile Hyacinthe Laennec: By Gerald B. Webb, M. D. New York, Paul B. Hoeber, Inc. 1928. pp. 146.

The semi-centennial of the death of Laennec celebrated two years ago has resulted in a recrudescence in the interest of the life of this interesting and great character in medical history. One of the most charming and delightfully written biographic brochures that has been published is the account of the life of Laennec by Dr. Gerald Webb. The little book is a true medical classic. It reads so smoothly and so easily that one is stimulated to unbounded appreciation of the work of the author, who has combined historical information of tremendous value with a literary style which is a real pleasure to appreciate.

Hoeber, as usual, has brought out a book which is more than a credit to this artist and superior craftsman in book making.

J. H. MUSSER, M. D.

Clinical Laboratory Procedures: By George L. Rohdenburg, M. D. New York, The Macmillan Co. 1928. pp. 266.

This easily read and comprehensible work is a compilation of simple, yet clinically accurate laboratory methods. It contains the routine procedures generally used in the laboratory with several of the newer tests for pathological urine constituents and in addition, the recent serological method of Kahn for the detection of syphilis, and the test of Kramer for the various mineral constituents of blood.

While requiring some knowledge of laboratory procedures on the part of those using the manual, it can hardly be used as a reference work for other than routine procedures.

E. H. LAWSON, M. D.

Collected Papers of the Mayo Clinic and the Mayo Foundation: Ed. by Mrs. M. H. Mellich and H. Burton Logie, M. D. Vol. XIX. 1927. Philadelphia, W. B. Saunders Co. 1928. pp. 330.

This volume contains many valuable articles previously published elsewhere, and here combined into a convenient whole. Any medical man, regardless of his special interest will find here much of value. In reading the articles dealing with experimental work, one admires the efforts of the workers to utilize every conceivable technical aid to clarify the problems under study. A great part consists of large series of cases so presented as to give the most information in diagnosis, prognosis, treatment and pathology. The following list of certain of the articles will serve to indicate the wide scope and nature of the work: The Significance of Infiltration of the Lung; Pulmonary Hemorrhage more frequent in Bronchiectasis than in Tuberculosis; The Importance of Bitemporal Heminopsia in Tumors of the Pituitary Body; Malignant Intracranial Endotheliomas; The Value of Ketogenic Diet in Constipation; The High Degree of Specificity of Microorganisms from Foci of Infections for Special Structures of the Body; The Prevalence of Dibothryocephalus Latum at Ely, Wisconsin, and the possibility of spread to other regions; The Diagnosis, Treatment and Pathology of Splenomegalies, by several authors; Malaria Inoculation in a large series of Neuro-syphilitic Patients; Research of the Lymph Drainage of the Thyroid; Malignant Hypertension; Prevalence of Pellagra in Non-endemic Areas; Value of Germicidal Dyes plus Blood Transfusion in Septicemia; Studies in extra-corporeal Thrombus Formation; Peripheral Vascular Diseases; Many articles on the liver, gall-bladder and cholelith, as to anatomy, physiology, pathological anatomy and pathological physiology; New Conception of the Pathology of Cirrhosis of the Liver; Corrosive Preparations showing the Dilatation and Alteration of the Bile Tree in Different Types of Obstructive Jaundice; Cholesterosis of the Gall-Bladder; Cholecystography; Blood Volume in the Edema of Nephritis and Nephrosis; A Cytological Key to the Diagnosis and Prognosis of Neoplasms.

In addition there are many articles on surgical technique as illustrated by the following: Partial Gastrectomy for Cancer of the Stomach; the results of operation for Duodenal Ulcer; Immediate and End Results of Supra-Pubic Prostatectomy; Results of Punch Prostatectomy; Satisfactory Method of Producing an Eck fistula; Method of Producing Block Anesthesia for Sacral Nerves; Diaphragmatic Hernia; Tuberculosis of the Knee-Joint in the Adult; Anterior versus Lateral Approach to Cervical Rib; Surgical Treatment of

Chronic Maxillary Sinusitis; Embolectomy; Surgical Procedure in Obliterative Vascular Disease; Operations of Necessity During Pregnancy; Total versus Sub-total Abdominal Hysterectomy; New Type of Permanent Colectomy.

S. J. LEWIS, M. D.

Les Association Microbiennes: By G. Papacostas and J. Gaté. Paris, France, Gaston Doin et Cie. 1928. pp. 438.

The authors in their introduction call attention to the fact that here and there and scattered throughout medical literature and in text books of bacteriology mention is made of the interesting reaction of bacteria upon each other, but they say truthfully that there exists no completed work dealing with this phase of microbiology, nor has the literature ever been collected which shows experimentally and clinically how various bacteria live and grow with each other or kill and destroy their fellow organisms. In various chapters they discuss symbiosis; antibiosis; the reaction of micro-organisms upon toxins; they deal with synergy and the antagonism between anaerobic and aerobic organisms, and lastly they discuss bacteriologic therapy, the outstanding example of which is the method employed in changing the bacteria flora through the action of *B. acidophilus*. The small volume is completed with a fairly complete bibliography.

J. H. MUSSER, M. D.

Clinical Medicine: By Oscar W. Bethea, M. D. Philadelphia and London, W. B. Saunders Company. 1928. pp. 700.

Dr. Bethea has endeavored, and most successfully it might be inserted here parenthetically, to prepare a text book which might be said to be midway between the great systems and the very much abbreviated staccatto little hand book for students, bearing in mind all the time that his book was to be written from the point of view that the man in general practice does not have available the resources of large and magnificently equipped hospitals. He incorporates in his work on clinical medicine about one hundred of the most common diseases, again showing his extremely good sense in not attempting to describe disorders which are rare, and with which he personally has had a very small experience. The work, therefore, is written by a man who knows well these diseases which he describes. In praising the book much can be said. The description of disease is concise but thorough. The advice that is given is extremely sane and conservative. Certainly the sections on treatment could not be improved upon without giving considerably more space to this phase of medicine. The directions are complete and thorough, and the prescriptions

given as examples are well selected and therapeutically excellent. In criticism of the book but little can be said. Several features which may be merely differences of opinion suggest themselves. In the first place, in dealing with the symptoms it will be seen that it would add to the availability of the book to black face or italicise the main symptoms which are placed in the ordinary font. The same might be said of the treatment in some of the sections. In diseases of the heart we would have liked to have seen the etiological classification recommended by the American Heart Association and coming to general use throughout the country. In the section on diseases of the kidney, it would seem that the classifications of acute nephritis and nephrosis, and chronic nephritis and nephrosis would give the impression to the student and the medical man that nephritis and nephrosis are practically synonymous, which they are not. One would also get the impression that nephrosis is common, which is not. In fact, there are certain well informed medical men who are even doubtful of the existence of nephrosis as an entity. These few remarks may be in the nature of carping criticism. There is so much to praise about the book, however, that it would take too long to detail all its merits, whereas it is relatively a simple thing to point out the occasional defect.

J. H. MUSSER, M. D.

Plaies et Maladies Infectieuses Des Mains par le Dr. Marc Iselin, Ancien interne des Hôpitaux, with a preface by Prof. Charles Lennormant, 1 vol., 8 oc., pp. 217, with 65 illustrations. Paris, Masson & Co. 1928. 30 fcs.

This is one of the latest monographs on subjects of outstanding interest in contemporary medical and surgical thought that are issuing periodically from the well known press of Masson & Co. The importance and timeliness of a discussion of the surgery of the hand as it is now evolving as a highly specialized art through the rapid advances of modern scientific surgery, cannot be exaggerated. The enormous increase in the hazard of accident and injury as it affects the human hand is one of the distinctive features of the mechanical and industrial age in which we live. Factories, foundries, mills, railroads, motor boats, motor cars and even the aeroplanes, are all prodigiously increasing the liability to accident and multiplying the opportunities for dangerous contacts between the machine and the human hand. The traumas of the hand and their infections have always commanded the attention of practical surgeons everywhere, but perhaps nowhere more than in the United States where the immensity of the country and the activity of this population have stimulated the growth of every conceivable means of speeding commercial traffic, and every mechani-

cal agency for the acceleration of travel, with a proportional increase in the liability to accident and injury. Under the stimulus of the world war and its immense number of casualties, highly specialized surgical units were organized for the treatment of almost every variety of traumas, and their mutilating sequelae which in peace, have been followed by still greater opportunities for their deliberate study and observation in the veterans' bureaus and hospitals. These and other factors, particularly the increasing demands of accident insurance and workmen's compensation, have tended to develop a greater interest and closer study of these manual injuries from the conservative surgeon's view point. It is with the principles and practice that govern this conservative treatment that D'Iselin's book is particularly concerned. It is a small and unpretentious volume, but the author has compressed in the space of its 217 well nourished pages, not only the latest and most reliable information that is obtainable from a thorough digest of the many scattered contributions of the ablest specialists in Europe and America, but he has introduced a number of original methods and technical procedures which give a distinct individuality to the work and call for its attentive study by all those who are concerned in the rehabilitation of the disabled hand when mutilated and crippled by injury or disease.

Dr. Iselin's monograph is the fruit of long and patient researches conducted in the clinic and in the anatomical laboratory, not only in France, but in the United States and Canada. This accounts for his familiarity with the work of the leading American masters and the conspicuous place that is given to the fundamental work of Kanel, and to the ingenious methods of tendon grafting and plastic repair that have been devised by Sterling Bunnell, Leo Mayer and other American workers who have done so much to recast the old surgery of the hand into its present wonderfully improved mould. If only by acquainting his French colleagues of the distinctive and highly original products of the American surgical workshop, Dr. Iselin has rendered them a real service.

The scope of this book is indicated by the captions to its three divisions. The first, devoted to pure traumatology—wounds or injuries of the fingers and hands, is embraced in seven chapters. The second, deals with the infections—the onychias, felons, palmar abscess and its subdivisions, teno-synovial suppurations in their extension from the fingers to the palms and forearms (six chapters). The third division is devoted to the reparative and reconstructive surgery of the hand in which the orthopedic, plastic and physiotherapeutic measures for the rehabilitation of the disabled hand, are admirably presented. In all this matter, the anatomy, the pathology, the guiding principles

of treatment and the details of technic applied in each case, are elaborated concisely, but with the remarkable precision, method and clarity, that is characteristic of French writers—made still easier of comprehension by the many excellent illustrations that accompany the text. The modernity and up-to-dateness of the matter discussed, is illustrated by the use of a number of terms such as "phalanxization" to designate the reconstruction of a missing finger by the transplantation of a less important digit or toe, to a remaining metacarpal; and by the term "pollexization" (if we may so adapt the French word "*pollicisation*" to English use) to indicate the replacement of a missing thumb by the transplantation of the adjoining index. All these and other newly-coined terms are still waiting for admission in modern medical lexicons.

The impression gathered from the perusal of this excellent book is that the surgery of the hand has profited so largely by the advances of modern operative technic, that in its reparative and reconstructive phases it has almost attained the rank of a specialty; a specialty that demands for its mastery a fundamental anatomical training and a mechanical ingenuity and resourcefulness, combined with patience, and a nicety of technic that is by no means common to all surgeons, even those who are quite expert in other larger and broader fields. It is particularly gratifying to note that so great a part of the progress accomplished in this surgical domain is justly credited to American sources by a foreign critic so competent and unbiased as the accomplished author of this book. It is hoped that it will not be long before D'Iselin's book will be translated for the benefit of English speaking readers.

R. M.

The Springtime of Physick: By Lawrence D. Redway, M. D. Author, 1928. pp. 68.

This is a very entertaining and humorous small book and should make delightful pastime for one tired of the daily cares of professional duties.

I. L. ROBBINS, M. D.

The Young Man and Medicine: Lewellys F. Barker, M. D., LL.D. New York, The Macmillan Company. 1928. pp. 202.

This is one of a series of twelve books written by representatives of different vocations. Speaking for the medical profession, Dr. Barker, in his usual delightfully sympathetic way, points out to the man about to enter medicine the various pitfalls that beset him and the rewards that will come to him. The book is more than worth while for the man considering the vocation of medicine.

J. H. MUSSER, M. D.

Asthma—Its Diagnosis and Treatment: By William S. Thomas, M. D. New York. Paul B. Hoeber, Inc. 1928. pp. 279.

The features of these 300 odd pages appealing to the reader are its clearness, its brevity and neat arrangement of the matter discussed. Many plates, 6 of which are in colors show distinctly the food and pollen reaction on susceptible patients. The book is strongly stamped with the author's individuality in presenting new thoughts and eliminating much of what is already known and accepted in handling hay fever and asthma patients. All who have done a great deal in this line realize that each asthmatic has to be treated not as a class but as an individual—the tests require study and wide experience. Though the reviewer is not prepared to accept all the new thoughts presented, he wishes to congratulate the author on the work reported and to point out that a book of this character helps the reader to grasp the subject better and to obtain more definite results.

Special parts deserve mention:

(1) Stress is laid on the importance of history taking, here details count; the method of procedure in testing and investigating hay fever and asthmatics is minutely given and the reasons for failure in obtaining cures or improvements are clearly set forth.

(2) Large doses of pollen are recommended for treatment.

(3) The exact place of the skygraph is clearly pointed out.

The author recommends ascertaining by individual tests which organisms are pathogenic before applying autogenous vaccines in pollen negative patients. Much space is devoted to this phase and also to that dealing with minute tests for egg allergy.

The chapter on pollen treatment is somewhat short but much space is given to ephedrin.

A work of this character serves its purpose well, it affords its reader pleasant, restful reading, increses the hope of clearing the mystery surrounding some of the refractory asthmatic cases and is a worthy companion to the bibliography found at the end of the book.

NARCISSE F. THIBERGE, M. D.

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A well printed attractively bound volume for the keeping of a diary of the baby's health, with a weekly summary showing a gain in weight and measurement.

J. H. MUSSER, M. D.

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A Compend of Pharmacy, which has run through ten additions and which was written primarily for the student of pharmacy and drug clerks, so packed with succinct pharmacologic information that it should prove of great value on the desk of the average practitioner where he could refer to it as the need arose.

J. H. MUSSER, M. D.

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MEDICAL EXPERT TESTIMONY.*

HON. S. L. HEROLD,
SHREVEPORT, LA.

My feelings upon receiving the invitation to address your society were the mingled ones of desire and reluctance: desire to evidence my appreciation of the compliment which the invitation implied, and reluctance to address so distinguished and learned an assembly on a subject upon which I was so little capacitated to enlighten. It was not until I had read—and reread—the thoughtful and learned article of your eminent chairman, suggesting legal remedies for the abuses occurring under the present system of administration of medical expert testimony, that it occurred to me that I might possibly throw some feeble light upon the discussion by presenting to you this subject from the viewpoint of the lawyer, rather than from that to which you have been accustomed—that of the scientist.

These two attitudes cannot, from the nature of things, ever exactly coincide. The devotee to medical science, like his brother in other fields of scientific learning and exploration, is concerned only with his consciousness of the correctness of his conclusion. He deals in abstract reasoning. Close analysis, accurate observation and logical conclusion are for him the beginning and the end of each problem. If he be intelligently careful in his observation

of facts, able to discard the wrong and accept the correct principles to be applied, and capable of applying these principles to his ascertained facts by proper process of reasoning, he is and should be satisfied with his conclusion.

But the lawyer's viewpoint cannot be restricted to the abstract correctness of any proposition. He deals with that most uncertain of all qualities—human nature. His function is, not merely to arrive at right, but to convert right into justice through the chemical agency of human action. In his contact with courts he must endeavor to bring the mind of the judge into harmony with his own, so that the mental processes of the authority to whom constituted government has committed the function of decision shall accept his theory of fact and the conclusion thereon based. In dealing with the jury he has still further complications to mar the scientific tendency of his professional work—the untrained and undisciplined mind, and the ignorance, the prejudice and the maudlin sentimentality with which our juries are so often marked. And yet, because our Constitutions so require and, to be fair, because no better system has yet been devised to administer criminal justice as the community desires it administered (which after all is the real reason, though one is supposed never to say it aloud, for its retention), we must continue to deal with the jury as a permanent institution, though perhaps with the same feeling as does the small boy for whom you prescribe the time honored castor oil.

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

The point is that you scientists deal with the abstract; we of the law with the concrete, and that upon the basis of human conduct, thought and emotion, the most inconstant of all variables.

But, however in practice our two professions may require different angles of approach, they are in absolute accord and unison upon their search for truth. And no difference may or can exist between the standards of ethics and of right between the medical and legal professions; in both they must be grounded upon and incorporated with the earnest and whole-hearted search of truth and pursuit of right.

I have taken a long time to arrive at my text, but my answer to the problems involved in the subject assigned to me flows entirely from what I have just said.

The topic is not a new one; but never has the subject been more often or livelier discussed in press and in periodicals than now, nor ever have remedies been as profusely and as earnestly insisted upon for what is acclaimed a crying evil, and even a disgrace. And yet everywhere these critics, these howlers for reform, fail to perceive that the blind spot in their mental vision is their inability or failure to see that the evils are not of the essence, are not inherent in the present system, but result from the human equation, which must likewise influence and control any system to be carried out by human beings.

In brief, as I see it, the argument is a two-fold one:

1. That the present system of adducing medical expert testimony is wrong.
2. That there should be laws to remedy it.

But members of your profession ought to be slow to favor the making of laws for its regulation. Even for admitted evils, the remedy is more than apt to be worse than the disease. Evidence the legislative impudence in dictating to learned physi-

cians what they may or may not prescribe for their patients, regardless of the effect of these inhibitions on health or life itself. Witness the demoralizing influence on a temperate people of the ridiculous law which attempts to wipe out a world-old and normal human appetite. Consider that other law which, to eliminate an evil traffic, says to the physician and the surgeon: "You may not secure that drug which alone may relieve your patient's suffering or cure his disease." I should think your profession would be loath to increase the scope of legislative control or to limit your own sphere of usefulness by the constricting power of legislation. Such action should be unthinkable, unless there be an admitted evil which requires the drastic remedy of lawmaking to abolish.

The greatest defect in the present system of adducing expert testimony is that your expert tends to become an advocate; that he may be employed because his opinion happens to coincide with that which is necessary to his employer's case, or, as sometimes happens, that he has worked up an opinion to fit that case. In either event, he is produced as a witness with the sole object in view of making out a case; and he appears, as truly as does the counsel, to advocate a particular conclusion and to bring to bear every mental resource to compel a decision favorable to the cause he represents for pay.

But, despite the frequency with which we encounter this combination of advocate and paid witness, it would be a gross slander on a noble profession to say that it was the rule. Just as the law has its shysters and crooks, so has medicine its quacks and frauds, and the ministry its blacklegs and hypocrites. But no sane man would contend that these unworthy practitioners illustrate the thought or conduct of the profession or that they constitute, however distinguished they may be, other than the element of which each profession must clean itself if it hope to retain public esteem. It cannot leave that

prophylaxis to the law; it must save itself. That both our professions can stand purification I have no doubt, but we must administer the drug ourselves.

The reason secondarily advanced is the frequency with which medical expert witnesses clash with each other in their conclusions, the confusion which a jargon of scientific terms produces in judge and jury, and the alleged necessity of allaying this dizziness by resort to other experts connected with no parties to the case. But it must not be forgotten that the honest expert is in the real sense a witness. The resolving of conflicts of testimony is an essential province of the court. Almost every case depends upon the determination of issues of fact, which means the reconciliation of apparently conflicting testimony or the rejection of some and the acceptance of other evidence. A surprisingly small percentage of litigated cases depend upon controverted propositions of law; in general the law is easy to apply when once the court can clearly determine the essential facts. The most honest of witnesses may and often do differ materially in their testimony as to facts occurring under their immediate observation. Why, then, should it be held a mark of opprobrium that scientists should differ in their opinions? In such cases, the court or jury have the same identical problem that they constantly have before them—the problem of decision by the weighing of opposing or apparently conflicting testimony. That, in its very essence, is a judicial function, which cannot be delegated to any body of experts, however learned they may be.

There is already in Louisiana sufficient law effectually to remedy in any case any abuse that might be threatened, either from the partisan character of expert testimony or from conflicting opinions of equally eminent jurists. The Code of Practice and the jurisprudence of the Supreme Court afford ample authority and precedent for the judge in any case to appoint experts, and he has entire freedom of action

in his selection. But such appointed experts are subject to examination and cross-examination, just as are those summoned or employed by the interested parties. Such judicial appointee, therefore, is removed from those factors which would induce partisan bias, but he appears not as judge or umpire, and is as subject to a testing of the correctness of his conclusions as is any other witness.

In this lies the necessary safeguard to the right of the individual. For, in the quest for betterment of social conditions, it must never be forgotten that individual liberty is the sole reason and excuse for organized government; that indeed the liberty of the individual constitutes, in its final analysis, the only true freedom. One's right to claim or to retain that which belongs to him, his right to resort to legal process to vindicate such rights, his right to defend his honor, his reputation, his liberty, his life by all means constituting due process of law, are guaranteed—not given—to him by the organic law. These rights, says the Constitution, are reserved to the people; mark the word "reserved," not "granted." They belong to and are inherent in any free people, and are never surrendered except to despotic power. One is entitled, of right, to summons in his behalf the witnesses to vindicate his rights, whether assailed by a private litigant or by the state itself. That right should not be and cannot be denied him. He is entitled to have submitted to the branch of government to which has been confided the power of adjudicating rights of life, liberty and property the evidence of his witnesses. He cannot be deprived of either—of life, liberty or property—upon the opinion of any expert body which is not tested by the appearance in court of its members in his presence and by their cross-examination, and which is not submitted, as is other evidence, to court and jury to be weighed and passed upon.

Legislation along lines which would prohibit the free selection by litigants or ac-

cused of their own expert witnesses, or which would resolve expert conflicts by resort to a body of selected experts, must be dismissed as impossible under our bill of rights and our scheme of liberty.

Please do not misunderstand me. I do not say that there is not much of truth in the charges leveled in general on the testimony of paid experts. Every legal practitioner has witnessed dishonest and suborned medical expert testimony. But he has seen dishonest lawyers; he has seen ignorant, prejudiced and corrupt jurors; and he has seen judges unfit for the judicial role. But particular instances do not suffice for general indictment, nor do evils in administration of rights justify abolition of the rights themselves.

May I suggest that the only practical remedy lies, not with the law, but with the human equation. As long as we have dishonest lawyers, dishonest experts will be found. As long as the so-called better classes systematically evade jury duty and leave its performance in such large part to the unfit, we shall have the disgraceful court performances intended to becloud the already clouded mind. As long as the educated and otherwise intelligent classes leave the selection of judges to the professional politician, we shall have the occasional ignoramus, crook or poltroon who sometimes disgraces the court room. If there were the real and abiding popular interest in the administration of justice that should be inherent in a people who have inherited the traditions of America, the judicial branch of the government, in which finally our liberties repose, would be administered by those who would meet the powers and responsibilities of their high honors and who would sternly repress those performances which have brought so much of reproach on both our professions.

Meanwhile, the only remedy as I see it, is that of house-cleaning. Vigorous effort to rid law and medicine of their unworthy members alone can give sanction to their

ethics. The lawyer who makes himself a party to a line of conduct based upon fraudulent expert testimony should be dealt with just as if he had committed the statutory offense of subornation of perjury. The doctor who forgets or lays aside his professional honor and prostitutes himself should be summarily dealt with by you.

I cannot but feel that the only effective remedy for the abuses that have brought such discredit upon the noble function of enlightening legal tribunals on matters of medical science lies in the disciplinary powers inherent in such associations as yours and in the effect of such exercise upon public opinion.

DISCUSSION.

Dr. G. M. G. Stafford (Alexandria): I am painfully conscious of the fact that I am very inadequately qualified to discuss a paper of this kind, however, I think that the Honorable S. L. Herold's splendid paper is the most timely one which has been presented to this body in many a day.

The present status of expert testimony is, to me, a most deplorable one. It accomplishes little toward meeting the intentions of the law, and it is frequently a source of deep embarrassment to the better thinking element of the medical profession. It is frequently repugnant to us to read the press headlines commenting on the divergence of opinions expressed in life and death cases by experts on opposing sides.

Now, expert testimony means testimony given by men who are qualified to speak with the voice of authority. As it is today, it means testimony given by one whom the courts see fit to qualify as an expert. I think that is all wrong. We have all seen the spectacle of a man testifying in a capital offense case, who is not even familiar with the rudiments of the subject, yet, he is qualified as an expert and speaks with authority.

Not many years ago, in a parish in central Louisiana, I will never forget it, I saw three physicians qualified as experts in a murder case, where the individual pleaded insanity. Those gentlemen had never seen, to my knowledge, an institution where insanity is treated, they knew very little about it, and, yet, they testified on the subject emphatically as to the sanity of that man, and he was hanged as a result of it. Now, I have no doubt, from my knowledge of the case, that the man was guilty, but his life depended solely on expert testimony, and I do not think he got a square deal. I think there should be a definite standard for the qualifi-

cations as an expert, and it should be adopted by legislative act and drawn up by a committee from both the medical and legal profession.

I think Judge Herold brought out a point that impressed me, he said the expert of today is too prone to become an advocate. I do not care how honest a man is, or how well he testifies, he is going to lean to the side by which he is employed.

It is nothing but human, he tells the truth, but he tells it in a way that he helps his side. He cannot help it, he does it unconsciously.

The Massachusetts law, even though it is not perfect, seems to me is a step in the right direction. Now, under its provisions all persons indicted with a capital offense must undergo a mental examination before the trial, and this examination is conducted by the State Department of Mental Diseases. Their report is filed with the clerk of the court, and is to be used in the trial. Now, this is an intelligent, unbiased, competent agency which passes on this man's case. That law not only applies to capital offenses, but to all felonies which have been committed more than once, where the man repeats the crime. Those cases must go before this commission before anything else is done.

Now, it seems to me that such a department in every state is not only essential, but would prove a great safeguard to society, in discovering latent and developing mental disorders, which sooner or later would result in some shocking crime. It is too late to close the door after the horse is out. You ought to do this beforehand.

Now, our present method of attempting to pass on the sanity of a case by an ordinary routine examination of an hour or two is entirely inadequate. If such a person were sent to a hospital where insanity is treated, and placed there under observation, a definite, correct diagnosis could sooner or later be made.

A man can feign insanity for a short time, he cannot feign it all the time. If he is there under observation he is going to give himself away sooner or later, if he isn't crazy, but he can fool you for a while if he is smart enough.

I have noticed in some cases that sanity or insanity is determined by the jury. I think that is the case in California. Now, gentlemen, no body of laymen, however intelligent, is capable of deciding a medical question. I feel it is high time for the legal and medical profession to get together and work toward the solution of the expert testimony question.

Dr. N. H. Seemann (New Orleans): I am certainly delighted to have been enabled to be present and hear the kind and consistent and masterful exposition of this subject by Mr. Herold, and

the one thought throughout his paper that appealed most forcibly to me was the judicial kindness that showed in every line of it.

Now, everybody wants to jump on the medical expert witness, and, because of the spectacular surroundings of a murder trial, where insanity is frequently the plea, why, more attention is directed to that particular branch of expert medical testimony than to any other. We have medical experts who testify in damage cases, some of them constantly appearing for the same insurance company. We have others appearing for the same lawyer, and we have experts in other lines of business.

When a man comes to a legal light, for instance, and tells this fellow he is as guilty as the proverbial gates of Hades, and this man begins to find a way out for him, I cannot see where a different code of morals can make that member of the legal profession correct in his actions, and then make the doctor who comes in and attempts to assist him with his knowledge any more guilty.

The same is true in regard to questions of the soul. We have experts in religion, priests and ministers and rabbis and so forth. The better part of them are good people; they help in this world. Now and then we have a small percentage of them who are rotten to the core. That does not detract from these noble professions, nor should we immediately abolish all forms of religion because some few of its proponents have gone wrong. We want to go about this thing rather sanely, and we want to protect our profession, as Mr. Herold has advised.

We jump on one another in the beginning and practically say that the whole idea of medical expert testimony is wrong, then we cannot blame other people in other professions from thinking so, because we have told them so ourselves. The ultimate cure of this thing is not going to be in legislation. I read (very boredly, I will admit), a report gotten up by the Bureau of Legal Medicine of the Medical Association, offering a plan whereby the judge would appoint three experts, which would be very similar to Dr. Stafford's advanced plan of a state lunacy commission. That commission, or those three men would be appointed either by a governor or by a judge, who would have his friends, his partisans. Human nature would come into play again.

The only solution of this, as any other question affecting honesty, is in the individual himself, the personal equation. If you have a good square shooter, (pardon the expression), in any business, you are going to get a square deal, but if he has anything in him that tends to crookedness, whether he be an architect, giving you an estimate on a building, or whether he be a road builder, giving

you an estimate on a contract for road building, or be a doctor, lawyer or anything else, if he is crooked it will show. If he is straight, you will get a square deal. That is all there is to it.

Dr. T. J. Perkins (Jackson): I feel that the State Medical Society owes the chairman of this section a debt of gratitude for having secured this excellent paper on expert testimony. I am profoundly interested in the question of expert testimony, because of the fact that I have charge of all the criminal insane in the State of Louisiana.

I cannot conceive of a medical man going on the stand and having anything in view in offering expert testimony in mental cases, except whether that man is insane, or whether he is not insane. We see, throughout the width and breadth of this land, physicians arrayed on either side of the question, one for the defense and one for the prosecution.

We must get away from that idea. Medical men are called in to determine a scientific fact in these cases, and they are not interested in anything except the scientific fact. I do not feel that this condition can be corrected until we have a State Lunacy Commission, and where the question of sanity arises in any case, the law should provide that it would become the duty of the judge to assemble the State Lunacy Commission to examine into the mentality of the individual in question, and their decision should be final as to the mental status of the accused.

I think it is time for the medical profession to take some action on the question of expert testimony, and I hope it will not be long before Louisiana will enjoy the privilege of being freed of medical men arrayed on either side in lunacy cases.

Dr. H. E. Bernadas (New Orleans): I just want to make a little statement in the question of expert testimony, whether conducted by a lunacy commission, by individual experts, would also resolve itself into a question of opinion. In these border-line cases, whether the gentlemen be on the lunacy commission or be medical experts employed by either side, the opinion is always apt to vary. Medicine is not only a science, it is an art, and there are few of us who can say definitely who is right and who is wrong in border-line cases.

We men who see cases just as we stand here, how many of us would look at a surgical case and say this case must be operated, and this case must not be operated and know definitely which is right. That same thing is going to apply in your lunacy commission, as it applied with the individual expert. You have, first, the question of honesty, and, second, to my mind, of equal impor-

tance, the question of individual interpretation, based on observation. That thing is apt to fail on either side, in your commission or your medical expert.

When you advocate a lunacy commission, you cast a doubt on the integrity and honesty of the individual experts, and I feel that doubt should not be cast by the medical profession.

Dr. Jabez N. Jackson (Kansas City, Mo.): We have as the subject before us this morning, I fancy, one of the most interesting topics for argument that we could produce, outside of strictly professional discussion.

In my early years in practice, I had a considerable amount of experience in testifying as expert technically in surgical cases, never as a neurologist. From this experience I become so absolutely disgusted with the whole scheme of medical expert testimony that I solved it for myself definitely fifteen years ago, when I decided that I would not testify as an expert under any conditions. And for the last fifteen years I have declined to examine, or to express an opinion upon a case where there was a suit involved.

Now, that is a condition to which many of us who are self-respecting are oftentimes driven, and it shows, therefore, fundamentally that there must be something wrong with the situation of expert testimony when a decent man hesitates to go into court.

Now, I am perfectly frank in saying two things, in the first place, that I do not believe that medical men oftentimes honestly differ in opinion, after competent, thorough investigation of the case. I believe that the average men will come to a conclusion, and to a correct conclusion in the large majority of instances, provided they are permitted to come to that conclusion without bias. In other words, that leads to the conclusion that in an expression of opinion on a professional subject, the opinion should be reached by unbiased means, which means that the expert should not be selected as representing either side of the question, and I believe, if that were the law, you would find very few instances of difference of opinion which brings the medical profession into disrepute.

I oftentimes have thought another thing, if the average lawyer in the beginning of his case was required to take the same oath that the witness takes, we would be better off. If a lawyer were compelled to swear that in the case now coming before the court, "I shall endeavor to elicit the truth, the whole truth and nothing but the truth," there would be less legal controversy.

In most instances, the lawyer on one side is trying to prove something to be true that he

knows, in the bottom of his heart, is not true, and it is very easy for him, with a fee advanced, to find a man who can honestly produce the weak arguments of a side.

There are no subjects which are absolutely without two sides to them, and it is very easy for a doctor, if he chooses to be an advocate, to strengthen those arguments which might be introduced for his side, and to gloss over the weak arguments. But if he were as a witness, someone summoned by a court to express an opinion to a court to render the decision, as far as the professional subject is concerned, there would be very few instances of differences in professional opinion. I do not believe that doctors inherently differ as widely as we are made to appear. I believe, fundamentally, therefore, that the medical jury should be an independent jury and should render a decision, and, therefore, I believe in the appointment of these expert commissions.

I do not know whether I would always agree in the point that selection of an expert jury should consist of a set of men officially selected, politically selected. I am not always sure that because a man happens to be the Superintendent of one of our insane asylums that he is the best neurologist, it isn't so in Missouri, a man may receive his appointment because he is a good politician, and fundamentally knows nothing about neurology when he gets the job.

I believe there should be a commission of men, an opinion from men who are known to be, and there is no difficulty for you gentlemen to know who your expert neurologists are in the State of Louisiana. I think that commission should be made by the State Medical Society, who are competent judges of the efficiency of the men. Fundamentally, were bias removed there would be little difference of opinion in a medical jury, and in cases where there is honest difference of opinion then the defendant should be given the advantage of the difference of opinion honestly arrived at.

Dr. C. V. Unsworth (New Orleans): As I am called upon very frequently to give expert testimony in mental and nervous cases, I feel as though I am in a position to say something on this subject. I do not feel as a great many of you do, that experts are not always honest in their opinions. I feel sure we have as many honest alienists in the medical profession as in its other branches. Probably this misunderstanding is caused by a lack of knowledge that the general public has, as to what constitutes the mental responsibility of an individual. We have often been accused of leaning towards the side by whom we are employed. This, of course, is not correct as a general thing, we are appointed by the court with a fixed compensation

for our examination and report back to the court. In other words, we are part and parcel of the court. I am not in favor of legislation of the appointment of a Lunacy Commission, as I feel it is impossible to legislate against honesty. If such an idea that a Lunacy Commission was to be appointed, I am sure the Governor would have applications in great numbers from many who would not be competent to serve on such a commission. This would be particularly true if there was some compensation attached. To my mind probably the proper remedy for the evils in expert testimony lies in adequate amendments of the code of ethics by which physicians and surgeons regulate their own conduct. As one judge says, "by that code, you can regulate your own conduct in the practice of medicine, and insist that others who join the ranks of your profession from year to year, shall agree to regulate theirs.

Mr. S. L. Herold (Shreveport): I have little to say. The discussion seems to revolve itself around the question of medical expert testimony in cases where insanity is alleged in criminal cases, in other words, around such alienists as those who figured in the infamous case just ended in Cincinnati. That is hardly a fair test of the proposition which I attempted to lay down in the paper.

Medical expert testimony is called from the necessities of the case into various branches of litigation; not merely in murder cases, where insanity is pleaded by a rich bootlegger, but in cases involving the testamentary capacity of one who has died and left a will, and in cases where it is necessary to prove insanity or contractual capacity, where contracts are attacked as being made by one of unsound mind.

Medical expert testimony is necessary in many cases in regard to physical diseases, not merely mental, and as to the necessity of surgical treatment, just as expert testimony is necessary in almost every line of litigated cases that involves some particular technical or professional question. We have questions of disputed handwriting, we have questions of metallurgy, we have questions of patent law, we have many cases, because law is as varied and infinitely diversified as life itself. Expert witnesses are needed constantly in the courts in every variety of litigation as to every conceivable kind of question.

There is no more reason for attacking the validity of medical expert testimony than there is for attacking the testimony of one who has made a life study of mechanics with regard to whether a machine is patentable, or as to whether the invention has been anticipated by someone else.

There is no more reason for discrediting medical expert testimony than there is for questioning the testimony of an agricultural expert as to the quality of soil or the manner in which crops are

raised. Every man is, more or less, an expert in some line. Because a medical expert is employed by someone who needs to have medical advice, there is no more reason for questioning his testimony than to prohibit the testimony of employees of a corporation in behalf of the corporation. You had as well say they are biased or question the testimony of one who belonged to the same lodge or same church as a litigant. All those are matters revolving around the human equation. You cannot make men honest by law. You cannot make men decent or sober by law, as has been well proved.

I have a horror of law-making. Mr. Chairman, are you familiar with the fact that at the last session of the Legislature, in Baton Rouge, there were made and fabricated sixty-seven new crimes which were not crimes before 1926. They range in seriousness all the way from wearing a pin of a fraternal order, of which the accused was not a member, to the failure to obey the summons of the boxing commission. Do you want your profession regulated and "ham strung" by politicians who are elected to sit for seventy days every two years and draw ten dollars a day? Do you want a learned profession whose roots go back two thousand years, grounded in scientific training and in education, to be regulated and controlled by men who know nothing whatever of the traditions of your profession, of the thoughts and sentiments that underly it, of the knowledge upon which it is based, and who care less?

I take no stock in the statistics which the learned Chairman of this meeting has quoted. I do not doubt the authenticity of his statement as extracted from the newspapers, but I do challenge the statement that crime has increased in America, in spite of the contrary argument that we read in medical and legal periodicals. And when I say that crime has not increased I mean that those things which are really crimes have not increased. I absolutely deny the inherent right of any law-making body to make a crime. You can no more make a crime than you can make a disease. Just as a doctor makes his scientific investigation to ascertain and find new remedies for diseases, so does the lawmaker attempt, legitimately, to find new remedies for social diseases, for those things which are wrong in themselves.

We know it is wrong to murder; it is wrong to steal; it is wrong to rob; it is wrong to take advantage of certain confidences; many things are morally wrong, and the wrong-doing appeals to every normal mind. But when the legislature sits down in its omnipotence to declare that things are crimes that are not criminal to the normal human mind; when the legislature sits down to make those acts criminal which the normal person does without any feeling of conscious wrong-doing,

then it is stepping beyond the proper sphere of legislation, and making rules which may incur penalty by their violation, but which are not, in themselves, crimes. And it is precisely because these rules have been made by the bigots, by the forty-nine legislatures and by the busy Congress in Washington that we have this enormous pseudo-criminal wave.

I challenge the statement that there has been any appreciable increase, or that there has been any increase in murders, in rapes, in burglaries, in larceny, or any of those things, which are really a crime to the average human being. Chicago, of course, excluded.

I know that in my parish, which is rather typical of the whole Southwest, I have made a very careful study, together with one of the judges of the criminal court, and we have come to the conclusion, after careful study, that there is much less crime in Caddo Parish, much less violent crime in Caddo Parish, very much less crime in proportion to the population in Caddo Parish, in proportion to the population thirty years ago, if you call crime those things which we know to be wrong whether there is a law or not.

There is an increase if you consider crime the violation of the Volstead Act and those other acts penalized by the reformers who set aside those guarantees that the founders of this nation had been so careful to preserve for the individual liberty of the individual citizen. If I am accused of murder, and I plead insanity, I may be insane; it is not due process of law to leave the question as to whether I shall be hung or not, or whether I shall be imprisoned in the penitentiary to any body of experts, however learned. They are wholly incapable under our scheme of government, under the Bill of Rights of the American Constitution and under the Constitution of Louisiana and the principles underlying these fundamental rights, they are absolutely incapable of saying whether I shall be hung or deprived of my liberty.

Tradition of six hundred years requires that I be considered innocent until I am conclusively proven guilty, and that I retain my life and my liberty until I am convicted, not by experts, but by the constituted authorities consisting of court and jury. They derive the basis of their conclusion from facts, from witnesses.

Those witnesses may testify to concrete facts upon which they are as apt to differ as experts are; they are equally apt to differ as to exactly what they saw and what they witnessed; or their testimony may consist of the conclusion of experts who, by reason of their particular knowledge of the subject, are capable of expressing an opinion, but, after all, under our scheme of things, under our charter of liberty, under our system of gov-

ernment, that testimony, whether it be as to facts or opinions, must be weighed by the constituted authorities and court and jury, each in its proper sphere.

Until this is done, I cannot be deprived of the rights of a free man, and what I say as to criminal law is equally applicable to my civil rights—my rights must be adjudged not by experts, but by the court—that branch of the government to whom has been confided by the people, under our American traditions, the power of judging.

The court may derive its conclusion from the testimony of witnesses as to concrete facts; the court may derive its conclusions from the testimony of men skilled in their profession or occupation, as to their conclusions from the facts; in either event, the constituted authority, the judicial branch of the government passes on those facts, and I cannot believe the American people will ever content themselves with leaving the decision of their, life, their liberty and their property to a body of experts, not subject to examination and cross-examination in open court. That is the basis of my observation.

THE FULL TIME HEALTH PROGRAM DEVELOPED IN THE MISSISSIPPI VALLEY FOLLOWING THE FLOOD.*

J. G. TOWNSEND, M. D.,

KANSAS CITY, Mo.

EMERGENCY SANITATION.

The flood caused by the waters of the Mississippi and its tributaries, which occurred in the spring of 1927, was one of the largest and most extensive in the flood history of this river. The States flooded were:

Arkansas	Mississippi
Kentucky	Missouri
Louisiana	Tennessee

Illinois, to a small degree, also suffered from the effects of the high water.

The total acreage flooded has been estimated to be nearly thirteen million. This represents 20,000 square miles. The number of people affected in this area is estimated at 908,185. With such a large area involved, sustaining a population of nearly

a million people, the question of the public health was one of greatest importance.

In order to care for properly and house the individuals who were forced from their homes, the American Red Cross, with its usual efficiency in such disasters, organized and operated 149 concentration camps in the area caring for 330,000 people. The distribution these camps was as follows:

STATE	Number of Camps	Maximum number peo- ple cared for in camp
Arkansas	62	133,800
Illinois	6	2,500
Kentucky	2	2,200
Louisiana	33	105,400
Mississippi	23	64,800
Missouri	18	14,000
Tennessee	5	7,300
	<hr/> 149	<hr/> 330,000

These people were not only housed and fed, but the care of the sick, as well as the prevention of the spread of contagion was also an important feature of what might be termed the emergency flood sanitation program in contra-distinction to the permanent post-flood program which was soon to follow.

In order to assist the local State health officers and local county health officers in combating this problem, much assistance was received from neighboring States in the furnishing of personnel and biologics.

The United States Public Health Service furnished twenty-four doctors, eight sanitary engineers and five scientific assistants, thirty-seven in all. The neighboring States furnished eighty medical officers, engineers and inspectors, and medical personnel was also furnished by the International Health Board. This personnel was detailed only through the requests of the State health officers and assigned to the State Boards of Health. Their work consisted in—

(1) Measures toward the safe disposal of excreta through proper latrines in proper locations, properly policed.

(2) Safe water supplies.

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

(3) The inspection of food and milk supplies furnished concentration camps.

(4) The isolation and quarantine of communicable diseases, and

(5) The immunization against typhoid fever and smallpox.

It has been estimated that in all the States in the flooded area 469,442 individuals were immunized against typhoid fever, receiving three inoculations, while 137,340 individuals were vaccinated against smallpox before the permanent health program began to function subsequent to July 1, 1927.

CONTROL OF MALARIA BY MEANS OF SCREENING HOUSES OF MALARIA CARRIERS.

This program, developed in the late spring and early summer of 1927, financed by the Red Cross and supervised by engineers of the U. S. Public Health Service under general supervision of Senior Sanitary Engineer J. A. LePrince, was based on the premise that the major part of any potential spread of malaria would be on the plantations, and that the most effective way of reducing the spread of malaria would be to prevent *Anopheles* having access to malaria carriers at the farm tenant houses so long as the limited time available and the available funds would allow. The work was organized in Arkansas, Mississippi, Louisiana and the western portion of Tennessee, this being the first time that so extensive a program had been carried out in this manner.

The plan of procedure was to visit as many homes as possible in the flooded counties to determine whether or not cases of malaria carriers were living there and to screen completely such homes, making them mosquito proof. This was accomplished by inspectors at the time of their visit, taking measurements of doors and sending them to a central point in the State where screen doors were made in conformity with such measurements and shipped to the communities in carload lots, where they were hauled

to the plantations by the several plantation owners. The Red Cross assisted the State health departments and co-operating agencies in supplying these inspectors, and also supplied the materials for screening and transportation from the factory to the local communities.

Wire screen was used for all doors and windows with the exception of some homes where a specially prepared netting was used for windows.

The plan of procedure in Louisiana differed from that in other States. Here the State Board of Health located and listed the malaria carrier farm tenant homes in eight parishes, while the Assistant State Sanitary Engineer supervised the construction of screen doors, their shipment, and the installation of all protective screening.

In Arkansas the screen doors were made at the Boys' Industrial School at Pine Bluff; in Mississippi at Greenwood; in Louisiana at the State Boys' Industrial School at Monroe, while in Tennessee the Manual Training Department of the public schools at Dyersburg accomplished the work.

This feature of the health program was extensive. The distance from the north to the south end of the entire project was about 320 miles, and the homes to be screened were scattered over 36 counties of four States. Each of the malaria case homes had to be sought for and the dimensions of the doors made. In the making of doors about 19 tons of twenty-four inch sheet steel had to be cut into 337,680 small triangles for screen door enforcement plates and each triangle had to have holes punched to receive the nails. About 50 miles of sixteen mesh wire screen had to be placed on door frames with a minimum of wastage in addition to the seven miles of cotton mosquito bar used on the window frames in some of the counties in Arkansas.

The actual work accomplished in the project was as follows:

	Tennessee	Arkansas	Mississippi	Louisiana	Four States
Flooded Counties Where Homes Were Screened	4	15	9	8	36
Homes Screened	483	2348	3276	653	6761
Doors Screened	1440	7304	10,238	2,193	21,175
Windows Screened	2387	12,200	12,931	2,777	30,295
Average Cost of Screening a Farm Tenant Home	\$ 11.68	9.67	11.07	13.99	11.02
Total Cost	\$5,630.87	\$22,707.35	\$36,254.39	\$9,883.00	\$74,475.61

Note—This table is taken from the report of Senior Sanitary Engineer J. A. LePrince, U. S. P. H. S.

The labor cost of making these doors was about twenty-seven cents per door, the average door costing in all about \$1.40 complete. It is realized that all homes with malaria carriers were not screened, only a proportion were, but the fact that nearly 7,000 homes were screened in a period of approximately 90 days is a good start, especially when it is recognized that so far as it was possible to determine these homes represented places where malaria cases reside and that the number of families containing malaria cases capable of infecting others is but a small proportion of the surrounding farm homes in the vicinity.

The work of further extending the screening program now rests with the full time county health units, the creation of which was the last step in the flood health program, or which might more properly be termed the post-flood program.

FULL TIME COUNTY HEALTH UNITS DEVELOPED AS A RESULT OF THE FLOOD.

The program just discussed might be properly termed actual emergency programs, which, of course, were limited to immediate needs, but a time came when the strictly emergency work was curtained or discontinued as the situation was relieved. It was recognized, however, that a serious problem still existed. In the majority of the flooded counties there were no organized public health agencies to carry on the preventive measures started to a logical conclusion and with slight prospects of developing a program, as the counties affected had very little money to appropriate for this work, in some instances being in actual financial straits.

It has long been recognized that the best public health program and one that will best insure permanency is the full-time county health unit plan, the community served enjoying the services of a full-time director, full-time nurse and full-time sanitary inspector. Some communities have more personnel, some less, but that is the standard.

At a meeting in New Orleans, June, 1927, attended by representatives of the Public Health Service, Rockefeller Foundation, American Red Cross, and various State Boards of Health, it was recognized and agreed that some such plan should be formulated and such a program fostered in the so-called flooded counties. This was made possible by a liberal contribution from the Public Health Service and International Health Board supplementing county and State funds, the counties being asked to appropriate a very small part of the total budget necessary to finance the health units. It was agreed that this fiscal plan would be in operation for eighteen months, that is to say from July 1, 1927, to January 1, 1929.

Representatives of the Public Health Service and International Health Board assigned to the various State Boards of Health assisted the State health departments in laying this proposition before the various county officials, and organizing the programs adopted. Of the 103 counties considered flooded in the six States, 85 were visited and this plan presented to the local governing authorities. The result was encouraging in that sixty-seven, or 78 per cent signed the budget and definitely com-

mitted the county funds to the project as of October 31, 1921.

Since the October figures were compiled, four additional flood parishes of Louisiana adopted the full-time plan, while two more committed to the project were organized. These six parishes started to function on the first of the year. This gives Louisiana 19 parishes organized on a full-time health plan since the flood.

The total number of counties adopting the full-time plan to date, including those in which no county funds were committed, is 78, or about 92 per cent of the total contacted. There were a few counties that actually had no money whatever to put into a health project, and in these the Public Health Service, International Health Board and State Boards of Health financed the projects temporarily with a limited personnel. In many counties the work was made possible by donations from the local Red Cross chapters, municipalities, chambers of commerce and civic organizations.

As is generally the case in the organization of full time health units, a difficulty of no mean proportion was that of finding suitable trained personnel to carry on the work. In order to meet this difficulty and facilitate the speeding up of the program the International Health Board organized training schools for the practical teaching of field public health work to prospective health officers, nurses and inspectors. The principal school was located at Indianola, Mississippi. Without exception the states developing the full time rural program sent trainees to this school. The International Health Board approved the training of the candidates upon request of the various State Boards of Health. Those accepted were given a grant of their railroad and pullman fare from their homes to the training school and return to the new field of duty as well as a per diem allowance while enroute and at the school. The number of trainees sent to the school, as of March 15, 1928, is given in the following table:

STATE	Physicians	Nurses	Inspectors	Total
Arkansas	20	23	17	60
Kentucky	10	29	16	55
Louisiana	13	7	24	44
Mississippi	4	12	19	35
Missouri	0	0	7	7
Tennessee	1	0	0	1
Total	48	71	83	202

Not all of these trainees were placed on duty through failure to qualify and resignations, while some were appointed without being sent to the school. This does not include the twenty-four office clerks on duty as of October 31, 1927.

The International Health Board submitted an appraisal on each trainee which was of inestimable value to the State Boards of Health in determining the fitness and ability of the persons seeking these positions.

The public health programs adopted in these full time projects were along the same standard lines as elsewhere enjoyed. In brief, activities were directed towards safeguarding the health of the child from before birth to adolescence through the media of pre-natal, infant, pre-school and school hygiene. This was accomplished through group conferences or clinics and the intensive physical inspection of school children for the purpose of locating physical defects and advising the parents to have corrections made through the family physicians. Concomitant with this program were educational measures in newspaper articles, lectures and the distribution of pamphlets. The local profession was encouraged to report communicable diseases and proper steps taken toward isolation and quarantine. Prevention of soil polution was affected by sewer connections when possible and the construction of the vault type of sanitary privy through personal persuasion and the enforcement of the existing ordinances. The inspection of food and milk supplies, the vaccinations against smallpox, inoculations against typhoid fever and diphtheria were also stressed and emphasized. A resume of the

work of these full time projects in the Mississippi Valley from July 1, 1927, through the month of February, 1928, is given in the following table:

JULY 1ST, THROUGH FEBRUARY 29TH, 1928.

1. Educational:		(b) Antismallpox vaccinations	42,045
(a) Lectures	5,152	(c) Complete diphtheria toxin-anti-toxin administrations	30,843
(b) Attendance	166,996	(d) Persons given prophylactic diphtheria antitoxin	640
(c) Bulletins distributed	201,361	(e) Persons given antirabic treatment	74
(d) Newspaper articles	5,807		
(e) Circular letters	38,229	13. Child Hygiene:	
(f) Health exhibits	319	(a) Prenatal—	
2. Sanitary Inspections:		(1) Cases given advice.....	881
(a) Private premises	37,749	(2) Examinations	266
(b) Public premises — schools, churches, etc.	7,848	(3) Office consultations	769
3. Special Inspections:		(4) Group conferences	120
(a) Dairies	1,028	(5) Home visits	1,287
(b) Other food-producing or food-handling places	4,757	(6) Midwives instructed	2,725
4. Examinations:		(b) Infant and pre-school—	
(a) For life extension advice.....	470	(1) Babies and children examined	4,371
(b) For work certificates (children) ..	26	(2) Office consultations, mothers ..	2,385
(c) For lunacy	112	(3) Group conferences with mothers ..	467
(d) Of prisoners	847	(4) Home visits	4,966
(e) Of food handlers	266	(c) School—	
5. Acute Communicable Disease Control:		(1) Children examined	113,394
(a) Visits to cases, carriers, contacts or suspects.....	11,673	(2) Found defective	69,453
(b) Cases of carriers isolated or quarantined	5,831	(3) Defects found	136,030
6. Venereal Disease Control:		(4) Consultations, parents (office and school).....	3,547
(a) Suspects examined	1,191	(5) Home visits	18,098
(b) Prophylactic treatments	48	(6) Talks to classes or drills in hygiene	4,769
(c) Curative treatments	1,675	(7) Exclusions for communicable disease	2,620
7. Tuberculosis Control:		(d) Nutritional classes—	
(a) Number examined	775	(1) Cases attending	3,352
(b) Positive	170	15. Laboratory Examinations:	
(c) Negative	269	Specimens—	
(d) Placed in institutions	232	Blood for Widal	118
(e) Home visits	1,132	Blood for B. typhosus.....	20
8. Persons Treated Hookworm Removal ..	18	Blood for Wassermann.....	1,654
9. Persons Treated for Prevention or Cure of Goiter	16	Blood for malaria parasite.....	4,791
10. Shick Tests	4,075	Smears for B. diphtheria.....	2,314
11. Cows Tuberculin Tested	3,587	Smears for gonococci	260
12. Immunization:		Sputum for B. tuberculosis.....	446
(a) Complete antityphoid administrations	91,173	Feces for parasites	1,015
		Water for B. coli.....	1,453
		Milk for high bacterial content..	255
		1. Sanitary privies installed:	
		Type—(a) Septic or L. R. S.....	58
		(b) Water-tight vault	9
		(c) Bucket and box.....	38
		(d) Pit	9,037

2. Privies restored to sanitary type.....	1,210
3. Septic tanks installed.....	138
4. New sewer connections	1,659
5. New water connections	336
6. Wells or springs improved.....	2,556
7. Public milk supplies radically im- proved	178
8. Public food handling places radically improved	867
9. Places producing foods for sale radi- cally improved	196
10. Dwellings effectively screened against flies and mosquitoes.....	2,524
11. Stables made sanitary	56
12. Nuisances corrected	2,505
13. Convictions for violation sanitary laws	5
14. Nutritional cases improved	688
15. Corrections of physical defects in- duced:	
(a) Infants	
(b) In pre-school children.....	
(c) In school children	10,241
(d) In adults	

(Note): These figures present the public health activities carried on in the newly organized counties and parishes from July 1, 1927, to date, and do not include any activities carried on in the eighteen full time county health projects in the several states which were organized and functioning before the flood. It must also be remembered that many of the flood counties were not organized and operating until the late fall of 1927, while some were not organized until the first part of this year.

MEASURES TAKEN IN THE CONTROL OF PELLAGRA.

The diseases which showed the greatest increase during the post-flood period were pellagra and malaria. On the morbidity reports submitted from the six states a definite increase in the pellagra rate was shown with the exception of Missouri where no cases whatever were reported and Kentucky where only thirteen cases were reported for 1927. The greatest increase was shown in the State of Mississippi where there were reported nearly

4000 cases in the four months period, July to November, 1927. Only 700 cases were reported for the corresponding period in 1926. A marked increase in the pellagra rate was also experienced in Arkansas.

The only measures taken to combat the pellagra rate were through the medium of the distribution of dried brewers' yeast which was generously supplied by the American Red Cross to various state boards of health. This was distributed through the full time health departments who in turn, in many instances, utilized the farm demonstration agents and other local organizations. In some instances, tomato juice in a limited amount was also distributed.

MALARIA CONTROL.

In the control of malaria emphasis was placed on the continuance of the screening program previously discussed. Although at present the work is not being done free of cost to the owners of homes, at the same time the comfort of properly screened houses was amply demonstrated and it is believed that a renewed interest in this phase of malaria control is developing. From the reports submitted by Mr. LePrince on the results of the screening program of last summer it was learned that in some instances county health officers have demonstrated at county agricultural fairs how substantially made screen doors can be constructed by farm tenants. In two parishes in Louisiana the health officers undertook a project which includes the screening of all malaria families in his parish. In other states the work is under way for the protection by screening of all malaria homes in malaria counties. (Work is now going on in 6 counties of five states as reported by Mr. LePrince, March 19, 1928.)

The free distribution of quinine in the form of capsules, pills and tablets was also carried out by the full time health departments through the medium of local organizations, quinine being furnished by the American Red Cross. At the present time,

however, the Red Cross has retrenched considerably in its policy of supplying this commodity as well as yeast in the control of pellagra.

CONCLUSIONS.

We are not unmindful of the disaster of last spring but some comfort can be obtained in the knowledge that better communities are builded on the ruins of those destroyed and as a rule a better public health regime inaugurated. Surely in this experience there has developed another flood; a flood of sanitation which has placed us many years ahead of our old program of full time health development. The fact that since last July 78 counties are enjoying adequate public health protection through the labors of over 200 full time health workers is a distinct step forward and a stimulus to perpetuate these endeavors. This can be done by creating such a popular demand for full time health protection that it will merit the same consideration in local government as an "educational program" or a "good roads program."

It is not too much to believe that this will be accomplished and that the Mississippi Valley will enjoy the universal public health protection it deserves.

DISCUSSION.

Dr. C. C. Bass (New Orleans): I am sure I voice the feeling of all others in expressing appreciation of the work done by the Public Health agencies in the health program that was so successfully carried on following the flood. It frequently takes great catastrophies to induce people to put into effect the measures for prevention and control of disease that are already well known.

One of the best examples of the necessity for special demand to bring about the proper reforms and to force people to employ available means was the control of yellow fever in 1905. Five years after the method spread, and then the method of control was well known, New Orleans and the other parts of this country were just as full of yellow fever as it was before the information was at hand. But whenever the epidemic of yellow fever came, then the people woke up and eliminated those conditions which made it

possible for the disease to exist and spread. The same thing has occurred with regard to plague.

During the flood period, I remember hearing many people say that perhaps the flood would finally prove to be a blessing in disguise. No doubt, those who were in the flooded district found the disguise very perfect. This Health Program that has been so much speeded up by the opportunity that was presented and the demands that were presented, has certainly been one of the blessings in disguise, of the flood.

The County Health Unit is destined to be one of the organizations of government in all well developed, highly civilized sections of the country. It seems that the county is the ideal unit, and, barring the few large cities where there may be municipal health units operating independently to advantage, the county unit is the most successful.

The demonstration that has resulted from the success of these health units and that have resulted from health units in other parts of the country show beyond question that whenever the time arrives, whenever the demand is sufficiently great, whenever the people are sufficiently well aroused to the opportunity and the need, then it is possible to put into operation a health organization, which can control most any of the communicable diseases, and contribute, perhaps, more largely to the welfare of the people than a similar amount of money or effort put into any other activity.

Dr. Oscar Dowling (New Orleans): I wish to express appreciation to the United States Public Health Service, the Rockefeller Foundation, and especially to the doctors of the State of Louisiana for their co-operation during the last flood. The doctors were wonderfully helpful. This was verified by a statement made by Dr. M. C. Reeves of Vidalia a week ago. He told me that everybody in his vicinity was vaccinated against typhoid, for which service he had not received one cent of compensation from the Red Cross or from any other source, and there had not occurred a case of typhoid in that community.

We were very happy to emerge from the flood with health conditions better than before. It was due to the splendid co-operation of the doctors and the help of the people who realized that our program was pertinent to conditions and meant control of disease. I want to quote from an address—I read this night before last—made by Dr. Formento before the American Public Health Association in Mexico City in 1892, in which he said:

"Every citizen today fully understands the importance, the necessity of a pure water supply, pure milk and wholesome food, removal of nuisances, ventilation, drainage, sewerage, paving of

streets, etc. Everyone appreciates the benefits of hygiene in all its branches and numerous applications. Never was there a more propitious time to agitate this great question of public sanitation. Governments and individuals begin to fully realize that sanitary improvement is a good investment—that hundreds or thousands spent in that direction will bring back millions and millions, to say nothing of the added value of increased population and diminished death rate. It pays to enforce sanitation

“On the subject of alimentation we will say that the necessity of meat inspection as well as that of a fixed standard to determine the quality of milk, and the prohibition from the market of tuberculous milk and meat, are now recognized by all sanitarians, and sanitary laws to that effect are being gradually adopted and enforced in every country.”

The important part to me is that this statement was made in 1892, and up to the present time we have not succeeded in convincing a number of our communities, among which are some of the largest, of the need of standardization of the milk supply. I hope it will come in the near future.

Based on past experience, I feel safe in saying that the time is not far distant when all communicable disease will be controlled in the State of Louisiana, as has been yellow fever.

Chairman Fred Mayer (Opelousas): Is there any further discussion? It is a strange phase of mob psychology in Louisiana that we have been whipped into a fever of excitement by some spectacular disease, like yellow fever, and pay absolutely no attention to those diseases that steal in like a thief in the night, “T. B.” or typhoid.

Our Board of Health, in 1906, through wholesale fumigation, in New Iberia, stamped out a case of yellow fever, and prevented a spread for the first time in the history of the South, before frost in a year following an epidemic year. The town, whipped into excitement, paid absolutely no attention to an epidemic of typhoid that had carried off sixty cases, and, of course, as usual, paid no attention to “T. B.”, which there as elsewhere, continued to ply its deadly work.

It is a strange phase of human nature that I have never been able to understand; the measures taken to stamp out yellow fever, directed primarily against that disease, stamped out the epidemic of typhoid and, incidentally, malaria, and the doctors for a year and a half were short of malaria cases, as a result of the measures directed against yellow fever. And incidentally, the people for the first time in forty years sat on their galleries without being pestered with mosquitoes, but when the danger of yellow fever passed away, they lapsed back into their old methods and indiffer-

ence with the usual malarial incidence, hence the necessity of constantly preaching hygiene and sanitation.

Dr. Oscar Dowling (New Orleans): The question raised by Dr. Willis in reference to educating the public is provided for in the requirements for the Health Officer. There are certain duties the Health Officer shall perform, but the directors of Health Units do additional work. The added activities do not excuse the director from performing routine duties, and undoubtedly they would have the community meetings or community clubs and have specific dates for lectures. Where the director desires help the State Board of Health will arrange to provide an additional lecturer.

May I bring to your attention that the law says each parish shall have a Health Officer. If we had the support of the doctors in the state we would have an efficient health officer in every parish of the state. The matter of compensation was decided by the Supreme Court, which ruled that the minimum salary for a health officer was three thousand a year with six hundred dollars for traveling expenses and four hundred dollars for incidental expenses.

The State Board of Health stands ready to provide for every parish in the State which desires to undertake full-time health work and will put up \$4,000. Where this is done the work is carried on more effectively. I bring this to your attention and ask your co-operation in seeing that we have efficient health departments in every parish in the State.

NINE YEARS GOING BEGGING.—There are communities in the South and Southwest where the most modern practice has been adopted; but there are still others in which conditions are utterly at variance with the high level of prosperity and intelligence characteristic of the nation as a whole. There are no public channels into which the South can more wisely pour liberal appropriations of its new-found wealth than those which lead to health, comfort and the prevention of disease. No one knows this better than the medical men of the South. Parts of the North and Northwest are equally behind. Nothing is too good for them in the way of tangibles. They have costly roads, motors, radios, musical instruments and all the amenities of modern American life. It is right that they should have them; but it is not to their credit if they neglect such intangibles as health and education.—Editorial; Saturday Evening Post, August 25, 1928, p. 22.

THE PROPHYLAXIS OF CANCER,
WITH SPECIAL REFERENCE
TO THE CERVIX UTERI.*

C. JEFF MILLER, M. D.,

NEW ORLEANS.

Every year 500,000 people die of cancer, 100,000 of them in the United States alone. It claims its victims at the rate of one in every four minutes, and it more than equals the combined annual devastation of storms, earthquakes, floods and volcanic eruptions throughout the world. Between the ages of forty-five and sixty-five one woman in every five dies of it, with carcinoma of the cervix uteri responsible for more than half of these deaths, and the United States leads the world in the prevalence of genital carcinoma.

Moreover, within the last twenty-one years—I am quoting from Schereschewsky's brilliant report in the United States Public Health Reports for 1926—within the last twenty-one years, while the death rate from tuberculosis has decreased 40 per cent and the death rate from typhoid has decreased 50 per cent, the death rate from carcinoma has actually increased. It has not remained merely stationery, which would be black enough, but it has actually increased. It must be granted that a portion of this increase is apparent rather than real and can be explained in two ways. In the first place, death certificates are now being filled out with greater accuracy and precision. In the second place, at least in civilized countries, men and women reach a greater age and possess a higher degree of longevity, so that, as one writer puts it, every person saved from death in youth is one more potential victim for cancer in old age. Granting all of this, however, the fact still remains that part of the increase is real, and in view of the generally decreasing death rate for other conditions, an actual increase of at least 25 per cent in the death rate for cancer in less than

twenty-five years cannot be viewed with complacency by the medical profession or with equanimity by the laity.

Statistics are notoriously unreliable, but these figures permit of no argument, and they are my apology, if apology be needed, for presenting again a subject to which I can add nothing new and on which I can probably say nothing that you do not already know. But it seems to me, even at the risk of being monotonous, that it is not amiss for us to study the situation again, to take stock of our knowledge of this hitherto invincible disease, and to consider how we are fulfilling our responsibility to our patients and to the public in what we are doing for it.

As Graves pointed out in his scholarly paper before the Sixth British Congress of Obstetrics and Gynecology which met at Manchester in 1926, in the combat with any given disease three factors must be considered, the essential or primary cause, the exciting or secondary cause, and the cure. We do not know the primary cause of cancer and our efforts to prevent it are therefore largely strokes in the dark. But we do know definitely its secondary or exciting cause, and efforts to prevent it, intelligently and intensively directed, would do much to lessen the incidence of the disease. And we know absolutely the cure, complete excision of the growth while it is still a local condition. That the disease is, relatively speaking, so seldom cured, is not a refutation of this fact but rather a reproach to us of the profession who fail to see it at this stage, partly because we have not educated the laity to seek out promptly, partly because we are prone to trifle with the condition even when it is brought to our attention.

I have only admiration and respect for the work that is being done in laboratories and clinics all over the world in the scientific study of cancer, and I know that our ultimate success in the combat with it will be due entirely to that work. I hope there-

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fore that you will not misunderstand me, that you will realize that I am in no way disparaging the efforts of these tireless students, when I say that until their work is complete, until the ultimate cause of cancer is identified, the key to success in the management of it does not lie in their hands. It lies rather in our hands, we men who are clinicians rather than scientists, and particularly it lies in the hands of the family physician who usually sees the patient first, and in the hands of the gynecologist to whom she is usually sent for treatment.

It is not my intention to dwell upon the pathology of cancer or to discuss at length the various theories of its origin, but because prevention and treatment are so largely based upon etiology, that phase of the question can be completely ignored. While we are still in the dark as to the ultimate cause, we do know that cancer is in all instances due to an abnormal growth, a running wild, so to speak, of normal cells which have lost the power, undoubtedly possessed by them though as yet unidentified, of inhibiting the size and growth of their tissues. Eventually these cells which grow out of their natural environment and beyond their natural boundaries destroy first the local tissues which feed them and finally the entire host. That is, cancer is essentially a perverted biologic process, an atavistic throw-back, as Blair Bell puts it, of the somatic cell to its earliest embryonic type because of the failure of its restraining hormone.

The primary cause of this perversion we do not yet know but the exciting or predisposing cause is very clear. Chronic irritation, no matter what form it may assume, probably lies back of every cancer of which it is possible to conceive. First advanced by Virchow and by Billroth, and for many years established only from the clinical side, in the last fifteen years this theory has been repeatedly proven from the experimental side also. The work of Jones, under the auspices of the Cancer Commis-

sion of Harvard University, is particularly conclusive and may be quoted as typical of all such investigations. Her report is based upon a study undertaken to determine the susceptibility or immunity of mice to a certain type of transplanted malignant tumor, the strain in which it is originally found being susceptible to its transplantation in 100 per cent of all cases; that is, the transplanted tumor always grows. On the other hand, mice of another strain are completely immune to it under ordinary circumstances; that is, the transplanted tumor never grows. But—and here is the crux of the investigation—the addition to the inoculated tumor of a piece of sterilized flannel results in the development of malignancy in about 15 per cent of the animals. That is, without considering other factors, local irritation, no matter how simple or how favorably introduced, if we may employ such a term, will cause malignancy and will overcome even an inherited immunity which, without such irritation, is capable of preventing any growth whatever.

Fitz-Patrick has recently advanced a special theory for uterine cancer which I quote to you, without comment, for what it is worth. It is his idea that there may be a possible connection between the rapid increase in the incidence of uterine cancer and the corresponding decrease in the bearing of children, since uterine and mammary cancer are increasing most rapidly in those countries in which race suicide is most prevalent. That is, by his theory a woman who persists in marital relations, which reflexly cause in the uterus the changes incident to pregnancy, but who at the same time repeatedly avoids child-bearing, is misusing her organs and is not functioning physiologically. The virgin, on the other hand, even though she does not bear children, is not malfunctioning. The theory is fanciful and as yet there is nothing to substantiate it, as its author is the first to admit. But he believes that special investigation along this line may be worth

undertaking, and he quotes in its favor Gideon Wells' suggestive statement that the dairy cow, which has the most over-worked mammary gland in the world, never develops cancer, while the human subject which does less work in bearing children than any other animal, is the only one which has cancer of the uterus with any degree of frequency.

Diametrically opposed to this view is the long accepted theory that cancer of the cervix develops because women have had children. Certainly the figures seem to support this belief, though recently it has been suggested that they may be capable of another interpretation, and we are coming to believe that it is not the actual child-bearing which is important, or even the trauma which results from it, but the inflammations and infections which follow that trauma. The sequence of events is quite clear. Cancer never develops in healthy tissues. The process of child-bearing, even if normal and physiologic, furnishes always a certain amount of trauma; if it is pathologic in itself or if it is improperly managed, that trauma is exaggerated. The injuries thus caused furnish a ready soil for infection, and the infection in its turn results in inflammations, foul discharges, and finally erosions which are characterized by hyperplasia, proliferation and cystic degeneration. This is particularly true of erosions of the papillary type, and Matthews and others have called attention to the fact that they have inherent in them all the hallmarks of malignancy, and that it is but a step from the extreme cell proliferation with orderly arrangement which occurs in marked hyperplastic endocervicitis to the disorderly arrangement with embryonic cells which is found in true malignancy. The sequence has been proved too many times to make it longer a matter of dispute. I am aware that pathologists object to the term precancerous on the ground that a condition is either malignant or it is not, and academically they are correct, but if

ever the term is used justifiably it is certainly in such cervical conditions as these we have just been discussing.

From the clinical side the proof is equally clear. It is supported by incontrovertible statistics and by the observations of many skilled clinicians. The incidence of obstetric lesions preceding cervical carcinoma is variously estimated at from 90 to 98 per cent, and in those instances in which there is no story of child-bearing, investigation usually brings to light a history of long-standing pathology ranging from inflammations to new growths. As Graves has well said, in the traumatized, lacerated, infected cervix are found all the elements favorable for carrying out in the human being the experiment of cancer production. Whether he is equally correct in emphasizing as strongly as he does the rôle which gynatresia plays in its production it is still not possible to say, but certainly it is a factor which cannot be altogether disregarded.

So much, then, for what we know of the etiology of cancer and especially of cancer of the cervix. Our knowledge is limited, it is true, but is it sufficiently limited to explain the appalling incidence of the disease throughout the world and to explain the appalling mortality, the tremendous economic and social losses, which follow in its wake? Are we as free from blame in the matter as we are wont to believe? And if not, how are we to improve the situation?

Leaving aside for the moment the matter of public education in this regard, let us consider our personal responsibility. The most eloquent news article, the most effective editorial, will never equal the personal instruction of the trusted family physician. Women must be taught to lay aside their dread of pelvic examinations. They must be taught that genital health, if I may so express it, is an integral part of their general bodily well-being. They must be taught to consult the physician not only when they suspect that something is wrong,

but even when they are sure that nothing is, as a sort of insurance against evil. Routine pelvic examinations at regular intervals during the cancer years and even before them would do more than any other thing to lessen the incidence of the disease and to reduce its mortality. And that ideal, Utopian though it be and far-off though it seem, is not impossible of attainment if we of the medical profession set it before ourselves as a definite goal.

Specifically, women must be taught that a vaginal discharge is never physiologic; that irregularities of menstruation are not normal at any age and are not more normal at forty-five than at twenty-five; that bleeding is not a natural accompaniment of the menopause; and that neither discharge nor bleeding ever occurs from a healthy uterus when once menstruation has ceased. Finally, they must learn that pain is not an early symptom of cancer and that the woman who deludes herself with the belief that because she has no pain she cannot have cancer is going later to pay the price of her false security.

It is equally important that women be taught the truth about cervical injuries and cervical infections. They must learn that a healthy cervix is the best possible safeguard against the development of malignancy. Here the responsibility of the physician is quite clear, and yet we still find men, many of them, who advise deferring the correction of cervical injuries until the patient is past her child-bearing years, with a blissful disregard of the fact that by that time irrevocable damage may have been done to the pelvic structures and malignancy may have become an actuality instead of a potentiality. Such treatment, too, must be undertaken promptly, not after the changes have occurred which may later produce cancer. The exact interval after childbirth, provided it be reasonably prompt, is not a matter of great moment, though I may say in passing that except in the occasional case I am not an advocate

of routine cervical repair immediately after delivery.

That such a plan, consistently followed, actually does prevent malignancy is overwhelmingly evident. Graves' figures, the latest I have at hand, show that in a series of roughly 5,000 cases studied by him in which cervical repair had been done, only four patients later developed malignancy, and in two of these the operation was unskillfully performed and defeated its own end in that a definite stenosis of the canal resulted. While the figures are not conclusive in that they have not been checked by an equally large control series in which cervical repair was done, at least they amply support the argument that properly performed repair operations are a most effective prophylaxis against cervical cancer.

It seems incredible and yet it is only too sadly true that often a physician is consulted by a patient who gives what would seem to be a typically suggestive history of discharge and bleeding and yet who is dismissed without examination, with merely a prescription for ergot, instructions for douching, and the advice to wait and see whether the condition does not clear up of itself. Perhaps the physician does not realize the significance of such a history, perhaps he is untrained or unequipped to make the necessary examinations, but whatever the cause, his tactics are more than futile, they are criminal. The equipment for a pelvic examination is simple, the cervix is readily accessible for inspection through a speculum, the development of a tactile sense is not difficult, and if the general physician does not feel himself competent to pass upon the case, he can always refer the patient to a specialist who is. No woman in the cancer years or before them, with such a history, should be dismissed without pelvic examination.

Moreover, mere palpation and mere inspection are not usually sufficient. Cancer in these modern days is not only a clinical

ality, it is a microscopic fact. The curette is the physician's weapon, the pathologist his ally. Indeed, cancer cannot be treated without the pathologist, and a hospital which lacks that important member does not deserve its name. Serodiagnosis of cancer is still in its infancy and perhaps will never outgrow its swaddling clothes, but diagnostic curettage and biopsy are established procedures, and the results of their interpretation by a competent pathologist may be taken as, humanly speaking, absolutely reliable. The patient may be inconvenienced, she may be put to needless expense, she may be unnecessarily alarmed, but on the other hand her life may be saved, and the end justifies the means. The curability of cancer depends entirely upon its early detection and early detection can be achieved only by adequate co-operation with the laboratory and the pathologist.

In this connection it is well to emphasize also the necessity for the routine examination of tissues excised when cervical repair is done. We have no guarantee that malignancy does not already exist, even in young women, and such a precaution is simply an added insurance against disaster.

The treatment of cancer is beyond the limits of my subject, but even at the risk of transcending them, let me point out that mere diagnosis is not enough. Treatment must be instituted promptly and it must be instituted discriminatingly. There is no type of treatment for all cases. Surgery is no more indicated as a routine than is irradiation, and there are instances in which, from the patient's standpoint, the best treatment is none at all, or, rather, to express it more clearly, the best treatment is one aimed to alleviate the symptoms rather than to cure the disease, for the reason that it is too late to treat the disease. The proper classification of cases is a sine qua non before any procedure is undertaken. The former division of borderline cancer is no longer admitted to exist, and today we have only early and late cases, the early being those in which the

disease is clearly localized within the cervix, the late, those in which it is extended beyond it. There may be subdivisions of this grouping and refinements of classification, but we cannot go beyond the fact that the type of treatment must always be decided by whether or not the disease is early or late, which in turn means whether or not is confined to the cervix or has extended beyond it.

As to the medical treatment of cancer, my own instinct, like yours, is to doubt the diagnosis in any supposed case in which a cure has been effected by drugs. As W. P. Mayo well puts it, the success of the cancer quack depends not upon the number of cancers he cures but upon the number of non-cancerous lesions he removes in the name of cancer. It would seem almost unnecessary to bid you flee from the advertised cancer cure as you would from the plague except that again and again one hears of physicians who, perhaps from ignorance, perhaps from other and less worthy motives, have apparently succumbed to its lure. In spite of its specious promises and its glowing testimonials, death stalks in its wake.

The situation is far from hopeless, at least as concerns cervical cancer. As Graves has pointed out, there are certain favorable factors in this disease which are not duly appreciated. It has a tangible etiology and a recognizable precancerous stage, it is primarily accessible, it is to a considerable extent preventable and in its early stages it is largely curable. The multiplication of statistics is unnecessary; we all know that the crux of the problem lies in two things, prevention and early detection. And both of these roads lead straight back to the medical profession, the achievement of both goals lies mainly in our hands.

We have already considered the importance of prompt diagnosis, we have already discussed the importance of the prompt correction of cervical lacerations and cer-

vical infections. They are always pathologic and they should never be tolerated, for while they may not become malignant, they have in themselves the possibilities of malignancy, so that every piece of prophylaxis, where they are concerned, cheats cancer of one potential victim.

But our responsibility lies deeper than our responsibility to our individual patients. We owe it to the public to keep constantly before it the true menace of cancer, and notable work has been done in this connection by the American Society for the Control of Cancer, the American Medical Association, the American College of Surgeons and the Gorgas Memorial Institute. But we have not gone far enough, we have not even approximated the results obtained in similar campaigns, notably that against tuberculosis. Cancer weeks are all very well but they are not enough. Systematic, intensive, unremitting preaching is necessary, precept upon precept, line upon line, repetition upon repetition. Nothing else can bring results.

And while we are preaching the menace of cancer, let us not ignore the other side. Let us emphasize to our patients and to the public that even in our present state of knowledge cancer is relatively a preventable disease, and that every case of cured cancer is fresh evidence that cancer can be cured. Cancer-hysteria is only a remote possibility, and I prefer Sir Berkeley Moynihan's view of the situation, that by preaching the menace of cancer to the public we are not scaring people to death, we are literally frightening them into life.

DISCUSSION.

Dr. C. P. Gray (Monroe): I am sorry that I was just a few minutes late, I was unavoidably detained, and I did not get here in time to hear all of the doctor's paper. I want to compliment him upon this paper, and, first of all to call to your attention the importance of the subject which the doctor has chosen.

I believe, in a way, there is no doubt but what the medical profession, from some angles, have frightened the public and misled the public, and have not educated them in the right direction,

or, in other words, that we have spent a great deal of lost motion in trying to teach them all in educating them in the importance of the prevention of cancer.

I am only going to take two or three minutes of your time, because I would much rather hear Dr. Miller discuss this than for me to make an attempt.

Next, I believe that we have been at fault, regards the cervix. We have been disposed to look upon the cervix simply as that portion of the uterus, the vaginal portion of the uterus which was capable only of creating damage to the extent of producing an extensive leukorrhea as in the majority of cases.

Now, it is true that we all know and realize that, to give grave consideration to the cervix that has been lacerated and torn in childbirth and to advise that that be repaired as early as possible, in order to remove that scarred tissue or that source of irritation, in order to prevent cancer. Now, it seems to me, that that is just about as far as the medical profession, as a whole, has gone. It seems that we have forgotten to impress upon the public those little glands beyond the external or physical of the cervix, and the infection which becomes imbedded in those glands and produces, in the majority of cases, this so-called leukorrhea.

Now, it seems to me that in those cases that we have overlooked the fact to impress this woman or that woman that that very condition is likely to become cancerous, and, no doubt, in my opinion, a great many of those cases are pre-cancerous when we see them. I have been struck with what, to me, is an abhorrence of the incorrect treatment of these so-called cases of leukorrhea simply for the reason that with proper treatment we might possibly destroy a latent cancer, a cancer which we do not recognize at that particular time.

I am sorry, Dr. Miller, that I did not hear all of your paper. I thank you.

Dr. E. D. Martin (New Orleans): To emphasize what Dr. Miller has said, that is, the importance of examining patients, not in any particular status but at all times. I say this because I believe there are many members of this profession who are lacking in such matters. Some of them live in districts where the women are too modest to permit examination. It is surprising how often patients come to us, who if they had been examined before or examined for some trouble of which they complain, they would have been relieved of a great many distressing symptoms.

I will report one case to show you how important it is to make these examinations, and I would

to stress the importance of the rectal examination as well. Not more than a week ago a patient came to me with a diagnosis of hemorrhoids. On examining the vagina I found a large tumor. This proved to be a fecal pack; this was removed and her symptoms disappeared. It was fortunate for her that this occurred, because she had an enlarged cervix which looked angry, and, although malignant, might, I believe, in time have become so.

The younger men are being taught to examine their patients, but the older men in the profession are lax, and they are not only lax in the examinations but they are lax in insisting on the examinations as routine.

Dr. Jabez N. Jackson (Kansas City, Mo.): I am what is known as a gynecologist, although in a particular part of the country the general surgeon does gynecology as well.

I have heard most of Dr. Miller's paper, enough to follow the trend of his opinion, which I approve of completely. In all the years that have gone in this much investigated subject of cancer it is surprising how little we know about cancer today, and yet, in another sense it is surprising how important are the things we do know, if we would put them into working effect.

We know very little as to the real nature and origin of cancer, some have believed in the specificity of it, due, possibly, to bacterial origin of cancer, others do not. I belong to the latter group, I do not believe there is any specific infection in connection with cancer, but we all have learned certain things, that is, that cancer can be produced by certain things, and those things can be classified under one thing, that is, chronic, repeated irritation, whatever it may be.

Sometimes this chronic irritation may be bacteriological in type, sometimes mechanical, sometimes chemical in type, but old lesions, neglected, can be the site in which cancer will develop, the reason is the argument which Dr. Miller has produced for the repair of the cervix and the correction of cervical cases, the only logical thing we know for prevention.

The second thing of importance is that every cancer, to begin with, is purely a local disease. The corollary is: that, if recognized when purely local and eradicated, nobody would die of cancer. Therefore, comes the great necessity of educating, not only the doctors who have the patients to examine, but in arousing the conscience of the woman to submit herself to examination whenever she finds anything in the nature of an irregular discharge of whatever type.

Letting about what I expect to talk to you this afternoon. In my early days of cancer of the

breast, I never saw a woman with cancer until the diagnosis was so evident that a housemaid might have made the examination. Now-a-days I find that in at least fifty percent of the women who come to me for tumor of the breast, a clinical diagnosis is impossible, and the result is that we are getting our patient at a time when the possibility of surgery is being vastly improved.

It matters not what we may consider as the therapeutics of late diseases, in most cases hopeless, although I am frank to say this, that, from observations, in the last few years, I have been very much encouraged to realize that there are some types of carcinoma of the cervix which used to be hopeless, but are now giving promising results from the use of radium. I still believe, however, that if the disease can be recognized in the very earliest state, where we know the pathology is confined entirely within the uterine body there is nothing so logical as the complete surgical removal of the uterus at that time. The difficulty comes in enabling us to determine as to whether there may be lymphatic permeation beyond the line.

When one comes with the infiltration of the uterus, backaches, severe in type, we realize that patient has passed the period for surgery, and it is a question of whether we can accomplish it by such a thing as radiation.

In the early days, I was somewhat skeptical of the benefit of radium, I am speaking of radium because I think that is the only thing to consider in the treatment of cervical carcinoma. In the treatment of cervical carcinoma, in the treatment of the cervix you can put your application right where you want it, and in the last few years I have seen several cases apparently inoperable that have been submitted to the radium with apparent clinical cure, some of them running over enough years to make it encouraging but, fundamentally, I think it is a most important thing for us to teach ourselves and to teach our patients that any disturbances of any unusual type in the woman, particularly when she reaches that period of susceptibility, that is about forty, that every unusual symptom should be carefully noted, that a doubtful diagnosis should be made a clear diagnosis by curettage and examination of the specimen, and these pre-cancerous lesions should be removed before they become cancer, and the cancer should be attended to in the early stages, where it is curable.

Dr. J. A. Devron (New Orleans): There is one thing I want to comment on. Most of you gentlemen have been approached by the radium interests. They are going around telling the doctors that if you buy radium it will cure cancer and everything else. That is a great danger. I think we should warn the general practitioner that it is

dangerous. Radium must be applied scientifically, and even men who have been using it for years will tell you that at first they did not know how to apply it and not destroy too much tissue. Sometimes, in the past, we have had the uterus and even the bladder slough down on us when we did not know how to use it. How can the general practitioner play with such a weapon? I think we should tell the general practitioner not to listen to these radium salesmen, but if they buy radium before applying to consult a gynecologist, or a specialist who will tell them how to apply it correctly.

Dr. C. Jeff Miller (New Orleans) (closing): The purpose of my paper was to emphasize the prophylaxis of cancer, not its treatment, and, in particular, to call attention to chronic infections of the genital tract as possible sources of malignancy. The cervix is the most common site of malignancy of the genital tract, a fact that is self-explanatory if we accept the theory of chronic irritation as the chief causative factor in the disease. Lacerations of the cervix occur in some degree in every delivery. All of them do not require surgical repair, indeed, the majority of them heal spontaneously. But those which do not, if they are neglected, produce definite and annoying symptoms, chief of which is the leukorrhea which is the most frequent reason for gynecologic consultation. Many physicians, I know, still advise against prompt repair of the cervix, even in those lacerations which quite evidently demand surgical treatment, on the ground that the woman will probably have more children and the work will be undone. This is bad advice. Every diseased cervix which gives rise to symptoms demands treatment, and whether that treatment is or is not surgical is beside the point. The principle is that some treatment is indicated, the details are matters to be settled by a study of the individual case.

Moreover, promptness of treatment is quite as essential as the procedure itself. In our present knowledge of cancer, imperfect though it be, we at least know that it is a disease whose origins may be traced many years back. To permit a lacerated and diseased cervix to remain untreated for years is therefore simply an invitation to malignancy to establish itself in the tissues. Correction of these troubles at or after the menopause is a policy which has nothing to commend it. If the condition is handled promptly the treatment is frequently a very simple matter, for cauterization with the electro-cautery, which is a feasible office procedure, is sufficient for the majority of cases.

Graves has emphasized very strongly the part which defective drainage may play in the development of malignancy, and it is easy to see how stenosis of the cervix or a contraction of the

vagina may give rise to chronic irritation. Likewise fibroids play a part in the production of this condition, not in the production of cervical carcinoma but of fundal carcinoma. Histological considerations prevent the development of malignancy in the growth itself, but the presence of fibroids within the uterus means another source of chronic irritation, and a very large number of cases of fundal malignancy are found to be associated with uterine fibroids.

Until we know more about the actual cause of cancer, we must labor persistently in the field of prophylaxis, and there is no doubt that both the incidence of the disease and its frightful mortality can be materially reduced by prompt and systematic treatment of lacerated and infected cervixes.

BLASTOMYCOSIS*

ALDO CASTELLANI, M. D.,†

NEW ORLEANS.

For some years I have been interested in the investigation of diseases caused by yeast-like or budding fungi. The term *blastomycosis sensu lato* covers all the conditions, although from a practical point of view it could be of advantage to limit the meaning of the term *blastomycosis* to denote solely or principally a clinical entity or more correctly a group of closely allied entities characterized by the presence of granulomatous, verrucoid lesions in which fungi of the type blastomycoid are found.

Yeast-like Fungi.—The term "yeast-like fungi" or "budding fungi" is unscientific but useful in practice. "Yeast-like fungi" are fungi which in the lesions appear as free oval or roundish cells, some of the budding, with usually no mycelium at a site, except occasionally a few mycelial elements. In cultures there may be only budding cells, or budding cells and mycelium or mycelium only. Morphologically, in the lesions two principal types of yeast-like fungi may be distinguished (a) the blastomycetoid (bla

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mycetic type, (b) the cryptococcoid (saccharomycetic) type.

The characters of the blastomycetoid are the following: Cells large, double contour very well marked, granules spherules in the protoplasm very evident of comparatively large dimensions.

The characters of the cryptococcoid (or saccharomycetic) type, are the following: Cells generally smaller, double contour less or much less marked, protoplasmic granules not so evident and usually much finer.

These fungi belong to widely different botanical groups; when cultivated, some of them show the same morphological characters as in the lesions, viz., oval or round-budding cells, with no mycelium, but some a number of them show presence of mycelium, and some, in fact, mycelium only.

Classification of Yeast-like Fungi (Budding Fungi).—The late Dr. Chalmers and myself have given a botanical classification of these organisms in the third edition of our "Manual of Tropical Medicine." Some of them are ascomycetes, others are fungi imperfecti; the principal families to which they belong are the following:

(a) In cultures, budding cells, and in lesions asci and ascospores present, no mycelium — Family Saccharomycetaceae, Rees, 1870.

(b) Same as (a), but mycelium present — Family Endomycetaceae, Rees.

(c) In cultures, budding cells (blastospores) present, no asci and no mycelium — Family Cryptococcaceae, Kützing, 1833.
(d) Same as (c), but mycelium present — Family Oosporaceae, Saccardo.

Each family contains a number of genera, a brief description of which may be found in Castellani and Chalmers' "Manual of Tropical Medicine", and also in the Hermann Lectures, University of Illinois,

1926 (Fungi and Fungous Diseases, by Castellani).

The following genera concern us—*Blastomycoides*, *Cryptococcus*, *Saccharomyces*, *Debaryomyces*, *Monilia*, *Willia*.

GENUS BLASTOMYCOIDES CASTELLANI, 1926.

Synonyms.—*Blastomyces*; *Oidium pro parte*; *Cryptococcus pro parte*; *Coccidioides pro parte*; *Zymonema pro parte*.

Remarks.—As unfortunately, for botanical reasons, the generic term *Blastomyces* can not stand, I suggested recently the creation of a new genus, *Blastomycoides*, which should be placed in the Family Oosporaceae rather than in the Family Cryptococcaceae.

Definition.—The genus *Blastomycoides* Castellani may be defined as follows: "Oosporaceae, with abundant mycelium and aerial hyphae when grown on glucose agar; abundant mycelium with, at times, lateral conidia when grown in glucose broth hanging drops; no gas fermentation of any sugar. In the lesions, only roundish or oval large cells are seen, at times, budding, with well-defined double contour and well-marked granulations in the plasma present, without any mycelium." This genus, in all probability, contains a number of species, but for the time being the following may be differentiated: *Blastomycoides dermatitidis*, *Blastomycoides immitis*, *Blastomycoides tulanensis*. For the practical differentiation of these three types I have found useful to grow the fungi on mannitol agar (1 per cent) and on lactose agar (1 per cent), besides other media. The agar is made up with peptone water, not broth. Large tubes should be used, not the ordinary tubes used for bacterial cultures. The inoculated tubes are kept at 26° C. for two weeks and then examined. In a fairly warm climate like New Orleans keeping the tubes at the temperature of the room is satisfactory.

Blastomycoides dermatitis Gilchrist and Stokes, 1898 *emen.* Castellani. — *Syn-*

onyms: *Blastomyces dermatitis*, Gilchrist and Stokes, 1898; *Oidium dermatitis* Ricketts; *Cryptococcus gilchristi* Vuillemin; *Zymonema gilchristi* de Beurmann and Gougerot; *Mycoderma gilchristi* Jannin, 1913.

In the lesions large roundish spore-like cells are found, 10 to 16 microns and much more, with a well-marked double contour and well marked protoplasmatic granules. On glucose agar the growth is white or greyish and often fluffy; abundant mycelium is present; several tufts of longer aerial hyphae are often seen in the centre. In mannitol agar (1 per cent) the growth is white-greyish with often a peculiar woolly surface. After a time (2 to 3 weeks) there may be a darkening of the growth and of the medium. In glycerine agar (1 per cent.) the growth is white, fluffy. On potato the growth is abundant, with white duvet. In glucose broth and other sugar broths the growth takes place all over the medium, including the surface portion. In glucose broth and peptone water hanging drops made from glucose agar cultures, at times only mycelial threads are seen, with absence of only very scanty lateral conidia; if these are present they seem to be mostly sessile. Gelatine is not liquefied. No gas fermentation of any sugar.

Blastomycoides immitis Rixford and Gilchrist, 1897. — *Synonyms*. — *Coccidioides pyogenes* Rixford and Gilchrist, 1896; *Oidium coccidioides* Ophüls, 1905; *Oidium protozoides* Ophüls, 1905; *Pcsadasia esferiformis* Canton, 1898; *Oidium immitis* Verdun, 1907; *Oidium pyogenes* Verdun, 1906; *Mycoderma immitis* Brumpt, 1925.

Remarks.—For this fungus the genus *Coccidioides* was created by Rixford and Gilchrist in 1897. The principal characteristic would be the presence of very large asci with numerous ascospores. The

botanical investigation I have carried on two strains of this fungus did not show the presence of true ascospores. The numerous minute bodies described as ascospores inside the large round cells are not in my opinion ascospores; they are protoplasmatic granules or spherules. This contention seems to be proved by the fact that when one of the large roundish cells produces a bud which later becomes a mycelial filament the same minute bodies are seen in the bud and in the mycelium produced. I venture to state therefore that for the present at least this fungus should not be considered to belong to the ascomycetes but to the fungi imperfecti and being very similar to *blastomycoides dermatitis* should be placed in the same genus, viz., in the genus *blastomycoides*.

Characters of the Fungus in the Lesion and in Cultures.—In the lesions large roundish or oval spore-like bodies are seen, 10 to 20 microns and even much larger. They have a well defined double contour and numerous minute roundish bodies are seen in the protoplasm which I am inclined to consider to be protoplasmatic granules or spherules. On mannitol agar (1 per cent) after two weeks incubation at 26° but as a general rule also after the same period of incubation at 22° or at room temperature the growth becomes a black slate colour and most of the medium takes the same colour. On glycerol agar the growth is white-greyish with a fluffy surface with a somewhat woolly appearance. On lactose agar the growth is white or greyish, there is no evident darkening of the medium. On potato it is usually white and fluffy. On carrot it is white and fluffy. In glucose broth the fungus growth is both at the surface and bottom. In hanging drop cultures a large amount of mycelial threads are seen, lateral conidia supported by sterigmata are often absent or present only in small numbers.

Blastomycoides tulaneensis Castellani, 1926.—In the lesions large roundish or oval cells are found, 8 to 16 microns and even much larger with well-marked double contour and some granules or spherules in the protoplasm of fairly large size. On glucose agar the growth is white and somewhat fluffy, this being due to tufts of aerial hyphae. In mannitol agar the growth is white and the medium does not become darkened. On lactose agar the growth is white, there is no darkening of the medium. In glycerol agar the growth is at times nodular with slight white duvet, at times fluffy white. In peptone water or glucose-peptone water or glucose broth hanging-drop cultures made from glucose agar cultures round lateral conidia supported by well-developed sterigmata are usually present. In cultures on solid media especially in the submerged portion of the growth at times large roundish or oval cells with a well-marked double contour membrane and protoplasmatic granulations may be present very similar or identical to those found in the lesions.

Blastomycoides tulaneensis on glucose agar and several other media often grows like a trichophyton with white duvet and at times radiating furrows.

In the following table are collected some differential cultural characters of the three types of blastomycoides. On glucose agar the differences are slight or absent, but they are usually distinct on mannitol, lactose and glycerol agars. The tubes were kept at 26° C. for three weeks.

GENUS CRYPTOCOCCUS KUTZING, 1833.

Definition.—Cryptococcaceae (budding fungi not forming ascospores) with vegetative elements not elongate; roundish or oval, with no very distinct double contour although there are exceptions; pathogenic and non-pathogenic; no globule of fat and only one bud at a time, and no formation of thick pellicle on fluid sugar media. Can be cultivated, the cultures consisting solely of roundish or oval cells with no mycelial filaments. Some species gas-ferment glucose and other sugars.

Principal Species.—For reasons already stated, and principally owing to the presence of a large amount of mycelium in cultures, the fungi described by Gilchrist in blastomycosis — *Cryptococcus (Blastomyces) dermatitis*—cannot be placed in this genus, as has often been done by some observers. The fungus found by Busse in a case of multiple abscesses and some fungi found by me in certain cases of blastomycosis of the tongue and in blastomycosis furunculosa may be placed in this genus.

Cryptococcus hominis Vuillemin 1901. — *Synonyms.* — *Saccharomyces* (sp.?) Busse, 1894; *Atelosaccharomyces bussebuschki* (Beurmann and Gougerot, 1909).

This organism was found in multiple deep abscesses in a woman by Busse. In the pus the fungus was present in the shape of oval bodies, with a membrane which had a double contour. These elements were arranged in groups; each group was embedded in an amorphous substance and surrounded by a capsule. Culturally the fungus showed only roundish budding forms, no mycelium and no

	Glucose Agar	Mannitol Agar	Lactose Agar	Glycerol Agar
immitis	Whitish-greyish or light fawn.	Growth and medium slate black colour.	White or greyish.	Greyish, woolly appearance.
dermatitis	Whitish or greyish, fluffy.	Greyish with often woolly appearance; at times deep darkening of the growth and medium.	Dark grey, at times almost slate black with darkening of medium.	White, fluffy.
tulaneensis	White, fluffy.	Always white, no darkening of medium.	White, medium not darkened.	At times fluffy, at times nodular with short white duvet.

asci. Growth on solid mediums was generally white with at times a yellowish tinge. Gelatine was not liquefied. According to Sasagawa, this fungus produces acidity in glucose, levulose, mannitol and galactose. The organism was pathogenic to rabbits, white mice and dogs.

Cryptococcus (Monilia) macroglossiae Castellani, 1925.—In Ceylon during the period 1903-1915 I observed three cases of a peculiar type of macroglossia of blastomycetic origin. Two years ago an interesting case of macroglossia of the same type was referred to me in London by Dr. Broughton Alcock, and in this case, too, I isolated a yeast-like organism.

Description of the Organism.—It is a yeast-like fungus, gram-positive and not acid-fast. The individual cells are oval and of rather large dimensions, the maximum diameter varying between 4 and 5 microns.

Cultural and Biochemical Characters.—On dextrose agar there is abundant growth, white, with a smooth surface. On ordinary agar there are the same characters as on dextrose agar, but they are less abundant. Glycerin and serum are not liquefied.

Sugar Peptone Water.—The organism does not produce gas in any sugar or other carbohydrate. Rarely it may produce a slight amount of acidity in dextrose.

Litmus Milk.—In litmus milk there is no change.

Agglutination.—It is agglutinated by the patient's blood (1 in 400); not agglutinated, or only slightly so, by the blood of patients suffering from furunculosis blastomycetica.

Presence of Asci and Mycelium.—Asci have never been observed even in very old cultures; a little mycelium is not rarely visible in certain cultures, especially in fluid mediums. It would, therefore, probably be more correct to

place this fungus in the genus *Monilia*, instead of the genus *Cryptococcus*. If it is placed in the genus *Monilia* it belongs to the *zeylanica* type (absence of gas in every sugar); it differs from *Monilia zeylanica* in not producing pigment, the cultures of *Monilia zeylanica* being yellow. The correct name for the organism would be *Monilia macroglossiae* Castellani (synonym, *Cryptococcus macroglossiae* Castellani).

Remarks on Macroglossia Blastomycetica.—The whole tongue is greatly enlarged, occasionally painful; the patient feels discomfort in eating and may have some difficulty in speaking; he cannot whistle. It may be difficult to make the clinical diagnosis of blastomycetic macroglossia, as the tongue, though greatly enlarged, may show almost complete absence of the verrucoid patches so typical of blastomycosis. Deep scrapings should be made from the tongue after it is dried and painted with tincture of iodine, and cultures should be made. The observation of yeast-like organisms in superficial scrapings of the tongue is without importance, as these fungi are not rarely found in that situation even in normal mouths. Potassium iodide has a beneficial effect on the condition. Vaccines prepared with the fungus seem to be useful.

Cryptococcus castellanii Re, 1925.—*Synonym.* — *Monilia* (Sp.?) *Castellani*, 1924; *Monilia castellanii* Re, 1925. Isolated by me from peculiar cases of persistent furunculosis, not answering to staphylococcus vaccine (blastomycosis furunculosa, furunculosis blastomycetica).

Description of the Fungus (English cases).—Morphologically the organism is yeast-like, gram-positive and not acid-fast. The individual cells are somewhat rounded or oval. The maximum diameter of most cells is from 3 to 4 microns. The fungus is seldom detected microscopically in the pus of the boil-like lesions, staphylococci generally being present in large numbers;

cultural methods are necessary; the cultures from the pus, as a rule, resemble cultures of staphylococcus aureus. It may be necessary to make a dozen or more preparations from what looks like a pure staphylococcus growth to find a few yeast-like cells. By plating and replating on dextrose agar mediums the fungus is finally isolated.

Cultural and Biochemical Characters.—The fungus grows abundantly on dextrose agar and grows also well, though less abundantly, on ordinary agar. The cultures on dextrose agar are at first white, but after a few days they show a characteristic yellowish or yellowish brownish pigmentation with occasionally a purplish or reddish tinge. Gelatin and serum are not liquefied.

Lead agar is not darkened during the first two weeks; later a slight darkening may occasionally take place.

Sugar Peptone Waters.—The fungus when recently isolated has little or no fermentative action on any sugar; it may produce a slight acidity in dextrose and levulose, and occasionally a slight amount of gas. When the fungus has been transplanted several times its fermentative action is greatly increased, and it generally produces acid and gas in dextrose and levulose and occasionally slight acidity in galactose; it does not form gas in any other sugars.

Litmus Milk.—The medium is not clotting; a slight acidity may be present.

Agglutination.—The fungus is agglutinated by the patient's blood in certain cases up to 1 in 400.

Ascospores and Mycelium.—I have never found asci even in extremely old cultures; mycelium in small amount is not rarely present in certain mediums, especially fluid mediums. A more complete description may be found in the Journal of Tropical Medicine and Hygiene, June 15, 1925.

Cryptococcus farciminosus Rivolta and Miscellone, 1883. *Synonyms*:—*Cryptococcus tokishigei* Vuillemin; *Lymphosporidium equi* Gasperini, 1908; *Leukocytozoon piroplasmoides* Ducloux, 1908.

Definition.—Vegetable oils *in situ*, oval or roundish, with well marked double contour.

Remarks.—This organism is often included in hypertrophied endothelial cells and in leukocytes in the lesions in horses suffering from lymphangitis epizootica in Europe, Africa, Asia and America.

Cultivation.—It is difficult to cultivate. Nègre and Boquet have used with success a medium made of agar and dried horse dung. Sugar reactions are unknown.

Cryptococcus epidermis Castellani, 1914.—Found by me in saccharomycosis or cryptococcosis epidermica; cells of variable size; has not yet been cultivated.

Cryptococcus capsulatus Darling, 1906. *Synonym.*—*Histoplasma capsulatum* Darling, 1906.

Definition.—In the affected tissue the parasite appears in round or oval form, measuring from 1 to 4 microns in diameter and enclosed in an achromatic refractile capsule. Cultivation so far has been negative.

Remarks.—This organism was found by Darling in the endothelial cells of capillaries and small blood vessels in the lungs, spleen, liver, intestines and lymph glands, as well as in the leukocytes. It was considered by Darling and others to be a protozoon, and for it the genus histoplasma was created. At present there is a consensus of opinion that it is a cryptococcus.

Pathogenicity.—This fungus is pathogenic for man, causing disseminated, hyaline, pseudogranulomas in the lungs, splenomegaly, necrotic areas in the liver and ulceration of the small and large intestines.

Cryptococcus histolyticus Stoddard and Cutler, 1916.—*Synonym*:—*Torula histolytica* Stoddard and Cutler. Found in a case of mycotic cerebrospinal meningitis (Freeman and Weidman); cultures yellowish. Produces acidity in glucose, maltose, saccharose and dextrine.

Cryptococcus ruber Demne, 1889.—*Synonym*:—*Saccharomyces ruber* Demne, 1889.

This organism was found in the stools of children suffering from enteritis and also in certain specimens of milk.

It grows easily on ordinary laboratory mediums, producing red colonies. According to Casagrandi, it does not ferment any sugar.

Cryptococcus pararoseus Castellani, 1926.—Isolated by me from the sputum of patients in the tropics with chronic bronchitis. Grows well on all ordinary mediums. The growth has a smooth surface and is pink or pink-red. It produces slight acidity in glucose and levulose.

Cryptococcus metaniger Castellani, 1926.—Isolated by me from a peculiar variety of *Trichomycosis nigra*. The cells are rather elongated, and it is possible that further investigation will show that the fungus does not belong to the genus *Cryptococcus*. On glucose agar it produces a jet black growth. It differs from *C. niger* Vuillemin in that the cells are more elongated and that the cultures are black in all the ordinary laboratory mediums. *C. niger* Vuillemin was originally found by Muffucci and Sirleo in 1895 from a pulmonary myxoma of a guinea-pig. The cells *in situ* have a thick mucilaginous membrane. The growth was brown or black on potato, but white on most other mediums.

Cryptococcus graciloides Castellani, 1925.—Isolated by me from cases of stomatitis cryptococcobacillaris in Central America. It is generally found living in symbiosis with *Bacillus vermiculoides* Cas-

tellani, 1925, from which it may be separated with difficulty.

This cryptococcus is a delicate yeast-like organism, gram-positive and not acid-fast. Each cell is roundish or more often oval, with frequently a flask-like shape. In preparations from the cultures the average maximum longitudinal diameter of most cells is from 3 to 4.5 microns, and the maximum average transverse diameter is from 2 to 3 microns.

Cultural and Biochemical Characters.—On dextrose agar, minute colonies somewhat streptococcus-like appear. On McConkey lactose agar there are minute colonies, but growth is often more abundant than on dextrose agar. In gelatin and serum growth is exceedingly scanty, and neither of the mediums is liquefied. With lead agar there is no evident darkening of the medium.

Sugar Peptone Waters.—There is no fermentation of any sugar, but it must be noted that the fungus grows scantily in these mediums and that sometimes there is no growth.

There are many other species of less known cryptococci. The following may be mentioned, none of which has been completely investigated biochemically.

Cryptococcus linguae-pilosae Lucet, 1901.

Cryptococcus plimmeri Constantin, 1901.

Cryptococcus degenerans Vuillemin, 1896.

Cryptococcus corselli Neveu - Lemaire, 1908.

Cryptococcus breweri Verdun, 1912.

Cryptococcus tonkini Legendre, 1911.

Cryptococcus sulfureus Beauverie and Lesieur, 1912.

Cryptococcus lesieuri Beauverie and Lesieur, 1912.

Cryptococcus salmoneus Sartory, 1911.

Cryptococcus niger Vuillemin.

Cryptococcus guillemondi Beauverie and Lesieur, 1912.

Cryptococcus harteri Beurmann and Gougerot, 1913.

Cryptococcus hudelo Beurmann and Gougerot, 1914.

Cryptococcus membranogenes Steinhilber, 1916.

GENUS SACCHAROMYCES MEYEN, 1838.

Definition. — Saccharomycetaceae (viz. budding fungi producing ascospores) with smooth spores, spore membrane single; no evidence of any copulative process; occasionally rudimentary mycelial tubes present; with transverse septation; induce alcoholic fermentation.

Saccharomyces blanchardi Guiart, 1906. — Found at an operation by Blanchard, Schwartz and J. Binot, on a patient who had been considered to be suffering from tubercular peritonitis. The fungus had produced in the peritoneum a large whitish, gelatiniform mass, weighing about 1 kg. The fungus grew well on all sugar mediums.

On maltose agar it produced crateriform colonies of snow-white color; asci with eight spores were present. On gelatin the growth was mucoid-like and gray. Liquefaction of the medium was slow. On potato there was a mucoid growth, whitish and darkening after a long time. On carrot the growth was viscid and abundant; it was pathogenic to rabbits, in which it induced a general mycosis, which terminated fatally.

Saccharomyces granulatus Vuillemin and Legrain, 1900. — Observed by Vuillemin and Legrain in a tumor of the submaxillary bone; cells ovoid, from 4 to 5 microns in length, and from 3 to 4 microns in breadth; cultures pinkish or pinkish red; ascospores and chlamydospores present; gelatin not liquefied, sugar reactions not given.

Saccharomyces tumefaciens Curtis, 1896. *Synonym.* — *Saccharomyces subcutaneus tumefaciens* Curtis, 1896. Found by Cur-

tis in a myxomatous tumor. It appeared in the tissues in the shape of spherical bodies from 16 to 20 microns in diameter, each surrounded by a zone of amorphous substance; grows well on all sugar mediums; in old cultures asci are seen, with from one to four spores; gelatin with surface growth whitish, no liquefaction; said to ferment saccharose, but not maltose or lactose; action on dextrose not mentioned; pathogenic to rats and dogs.

Saccharomyces samboni Castellani, 1907. — Cells roundish, from 6 to 8 microns in diameter, easily grown on various mediums, producing white colonies, which rapidly coalesce; found by me in Ceylon in a few cases of intertriginous dermatitis of the cruroscrotal region. A similar or identical organism has been observed by Whitfield in England in a case of the same dermatitis. Ferments glucose, levulose and maltose; gelatin is not liquefied; in old cultures asci are occasionally present, but certain strains do not seem capable of producing asci and therefore probably belong to the genus *cryptococcus*.

Saccharomyces hominis Klein and Gordon, 1903. — Isolated in some cases of tonsillitis clinically resembling diphtheria; roundish or oval cells, from 5 to 7 microns in diameter; pathogenic to guinea-pigs and rabbits; sugar reactions unknown.

Saccharomyces anginae Achalme and Troisier, 1895. — Found by Achalme and Troisier in a case of tonsillitis showing white patches; *in situ* cells ovoid, from 8 to 15 to 5 to 6 microns; in cultures 4-spore asci are present; on gelatin, surface growth white; ferments saccharose, but other reactions not given.

Saccharomyces balzeri Balzer, Burnier and Gougerot, 1911. — *Synonym.* — *Parendomycetes balzeri* Balzer, Burnier and Gougerot, 1911. Grows on culture mediums under the type of oval or roundish, yeast-like cells, proliferating by budding; isolated by Balzer, Burnier and Gougerot

from a gummatous condition; sugar reactions unknown.

Saccharomyces cerevisiae Meyen, emendavit Hansen.—*Synonym*: — *Cryptococcus fermentum* Kützing; *Tortula cerevisiae* Turpin; *Hormiscum cerevisiae* Bail.

Cells oval or roundish, ascospores formed at all temperatures between 12 and 37 C., optimum from 25 to 30 C.; abundant growth on all ordinary laboratory mediums, colonies, white, surface usually smooth. There are several varieties of *S. cerevisiae*. The one in my collection gas ferments dextrose, levulose, maltose, galactose and saccharose. This fungus and its varieties are used in the production of beer.

Saccharomyces ellipsoideus Hansen.—Vegetative cells, mostly elliptical; optimum temperature for appearance of ascospores 25° C., ascospores-formation takes place at any temperature between 10° and 32° C. The ascus cell is of small dimensions, is ellipsoidal and contains from one to four ascospores which measure from 2 to 5 microns; according to Marchand, they germinate after having copulated two by two. This *saccharomyces* which is found on the surface of grapes plays an important role in the process of vinification.

Saccharomyces pastorianus Hansen.—Vegetative cells roundish or oval, at times elongated; asci elongated, usually containing from 1 to 4 ascospores, each ascospore varies in size between 1.5 and 3.5 microns; occasionally much larger ascospores may be seen, up to 5 microns in diameter; optimum temperature for development of ascospores 27.5° C., but ascospore formation takes place at any temperature between 4 and 30.5° C.; at 31.5° C. formation of ascospores ceases completely. This fungus gives a bitter taste and a bad odor to beer.

GENUS DEBARYOMYCES KLOCHER.

Definition.—Saccharomycetaceae with ascospores presenting a verucose surface. Several yeastlike organisms, some of which

are found in scrapings from the skin and are probably non-pathogenic, have been classified in this genus of Ota. A pathogenic one is *Debaryomyces hudeloi* (de Beurmann and Gougerot, (1909), Fonseca emendavit 1922. Asci, which are scanty, contain one spore with a cerrucose surface. The fungus is said to ferment glucose and saccharose, but not levulose, maltose, galactose or lactose. It was found by Hudelo, Rubens, Duval and Laederich in a case of multiple abscess in France (Busse-Buschke type of blastomycosis). The vegetative cells are roundish or oval, occasionally elongated. They are from 2 to 4 microns, in diameter, and when elongated from 6 to 8 microns.

GENUS WILLIA HANSEN, 1904.

Definition.—Saccharomycetaceae with ascospores lemon-shaped or hat-shaped; as a rule they do not produce alcoholic fermentation, but do produce various ethers; cultures present a pleasant fruity odor.

Species in Man.—*Willia anomala* Hansen, 1904.

Willia anomala Hansen, 1904.—Rather small oval cells; in sugar liquid mediums it forms a well marked membrane, containing air bubbles; asci with from two to four spores of the so-called hat-like type; dextrose fermented, but not saccharose or maltose; ferments beer-wort, with production of ethers; found by Beauverie and Lessieur in the sputum of a tuberculous patient.

GENUS MONILIA PERSOON, 1797.

As regards the botanical characters of the genus *Monilia*, the original definition by Persoon is *Stipitata aut effusa byssoidea, Fila moniliformis articulata*. These fungi are stated to be characterized by the sporophores being simple or subsimple, and producing by constriction at their extremities, a chain of large, lemon-shaped conidia, often provided with a disjunction apparatus. The general tendency at the present time, however, is to extend the term "*Monilia*" so as to include all those organisms of the family Oosporaceae Saccardo, 1886, the vegetative body of which (thallus) in its parasitic life

in situ in the lesions) appears composed of mycelial threads and free budding forms, some of the mycelial filaments being long and branched, and of rather a large size, and often presenting arthrospores. In the saprophytic life (cultures on the usual solid laboratory media mostly yeast-like, roundish or oval bodies are seen, while mycelial filaments are very scarce or absent, and when present they are rather short and consist only of a few articles. Some monilias show very little mycelium also in the lesions. *Monilia* fungi very often ferment glucose and other carbohydrates with the production of gas.

Classification.—Morphologically, monilias may be separated into two groups: (1) the free budding cells are roundish, and (2) the free budding cells are oval or elongated. Morphological characters, however, will not help further in the classification of these fungi, and for some years have recommended a biochemical classification. For practical purposes monilias may be conveniently classified according to some of their biochemical characters, as follows:

1. Gas produced in dextrose only. *Alcanica* Group.—Principal species: *Monilia balcanica*, Castellani; *Monilia parabalcanica*, Castellani.

2. Gas produced in dextrose and levulose. *Krusei* Group.—Principal species: *Monilia krusei*, Castellani; *Monilia parakrusei*; of *Monilia krusei* there are apparently two types morphologically: one oval (typical *krusei*), the other roundish; *Monilia castellanii* Re., is probably a cryptococcus.

3. Gas produced in dextrose, levulose and maltose. *Pinoyi* Group.—Principal species: *Monilia pinoyi* Castellani; *Monilia barbaroi* Castellani.

4. Gas produced in dextrose, levulose, maltose and galactose. *Metalandinensis* Group.—Principal species: *Monilia metalandinensis* Castellani; *Monilia pseudometalandinensis* Castellani.

5. Gas produced in dextrose, levulose, maltose, galactose, and saccharose. *Tropicalis* Group.—Principal species: *Monilia tropicalis* Castellani; *Monilia metatropicalis* Castellani.

6. Gas produced in dextrose, levulose, galactose and saccharose. *Rhoi* Group.—Principal species: *Monilia rhoi* Castellani.

7. Gas produced in dextrose, levulose, maltose and saccharose. *Bronchialis* Group.—Principal species: *Monilia bronchialis*.

8. Gas produced in dextrose, levulose, saccharose and raffinose. *Guillermonti* Group.—Principal species: *Monilia guillermonti* Castellani; *Monilia pseudoguillermonti* Castellani.

9. Gas produced in dextrose, levulose, galactose, saccharose and insulin. *Macedoniensis* Group.—Principal species: *Monilia macedoniensis* Castellani; *Monilia macedoniensoides* Castellani; *Monilia chalmersi* Castellani.

10. Gas produced in lactose and other carbohydrates. *Pseudotropicalis* Group.—Principal species: *Monilia pseudotropicalis* Castellani, of which there are several varieties.

11. Gas produced in dextrin, in addition to other carbohydrates, but not in lactose. *Pseudolondinensis* Group.—Principal species: *Monilia pseudolondinensis* Castellani; *Monilia pseudolondinoides* Castellani; *Monilia africana* Macfie.

12. No gas produced in any sugar. *Zeylanica* Group.—Principal species: *Monilia zeylanica* Castellani; *Monilia zeylanoides* Castellani; *Monilia macroglossiae* Castellani.

It is important to note that many monilias after a few transplantations lose some of their fermentative characters or these are altered. Hence, the determination of species is possible only when recently isolated strains are used. There are, however, certain monilias, as, for instance, *M.*

TABLE I.
BIOCHEMICAL CHARACTERS OF CERTAIN MONILIAS.

	Glucose	Levulose	Maltose	Galactose	Saccharose	Lactose	Mannitol	Dulcitol	Dextrin	Raffinose	Arabinose	Adonitol	Inulin	Sorbitol	Starch	Glycerine	Inositol	Saltin	Amygdalin	Isodulcitol	Erythritol	Gelatine	Serum	Litmus Milk	REMARKS
<i>Monilia zeylanica</i> Castellani.....	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	C	Yellowish White
<i>Monilia zeylanoides</i> Castellani.....	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia (cryptococcus) macroglossiae</i> Cas- tellani.....	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia balcanica</i> Castellani.....	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia parabalcanica</i> Castellani.....	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia krusei</i> Castellani.....	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia parakrusei</i> Castellani.....	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia (cryptococcus) castellanii</i> Re.....	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	Yellowish or reddish- brownish
<i>Monilia pinoyi</i> Castellani.....	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia nabarroii</i> Castellani.....	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia metalondinensis</i> Castellani.....	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia pseudolondinensis</i> Castellani.....	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia alba</i> Castellani.....	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia pseudolondinoides</i> Castellani.....	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia africana</i> Macfie, 1921.....	G	G	O	G	O	O	O	O	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia albicans</i> Robin emen. Castellani and Chalmers.....	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia tropicalis</i> Castellani.....	G	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia metatropicalis</i> Castellani.....	G	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia rhoi</i> Castellani.....	G	G	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia guillermondi</i> Castellani.....	G	G	O	O	G	O	O	O	O	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia pseudoguillermondi</i> Castellani.....	G	G	O	O	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia macedoniensis</i> Castellani.....	G	G	O	G	G	O	O	O	O	O	O	O	G	O	O	O	O	O	O	O	O	O	O	P	White
<i>Monilia macedoniensisoides</i> Castellani.....	G	G	O	G	G	O	O	O	O	O	O	O	G	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia chalmersi</i> Castellani.....	G	G	O	G	G	O	O	O	O	O	O	O	G	O	O	O	O	O	O	O	O	O	O	O	Dark brown
<i>Monilia parachalmersi</i> Castellani.....	G	G	O	G	G	O	O	O	O	O	O	O	G	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia bronchialis</i> Castellani.....	G	G	O	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia pseudotropicalis</i> I.....	G	G	O	G	G	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia pseudotropicalis</i> II.....	G	G	O	G	G	O	O	O	O	O	O	O	G	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia pseudotropicalis</i> III.....	G	G	O	G	G	O	O	O	O	O	O	O	G	O	O	O	O	O	O	O	O	O	O	O	White
<i>Monilia pseudotropicalis</i> IV.....	G	G	O	G	G	O	O	O	O	O	O	O	G	O	O	O	O	O	O	O	O	O	O	O	White

G==production of gas. C==production of clot. O==negative results, viz., gas absent, no clotting.

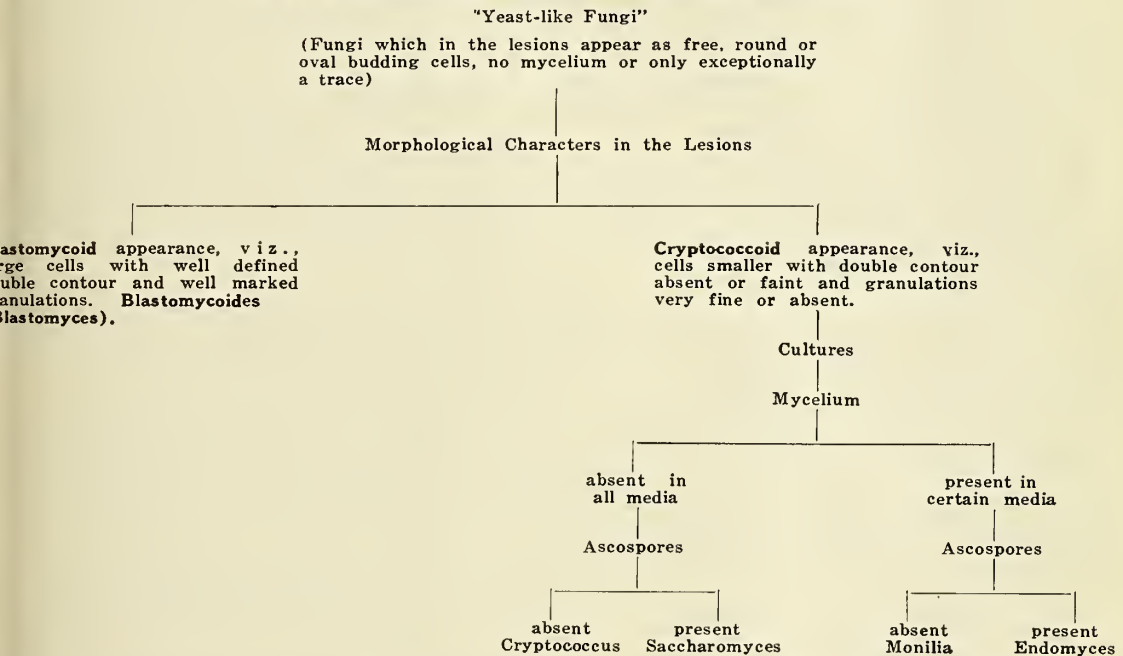
TABLE II.

SIMPLE CLASSIFICATION OF YEAST-LIKE FUNGI FOR THE USE OF CLINICAL PATHOLOGISTS.

Yeast-like Fungi (viz.) Fungi which in the lesions appear as round cells, some of them budding, with no mycelium or excep- tionally a trace).	Examine morphological characters in the lesions	Blastomycetoid type, viz., large cells with well defined double contours and well- marked granulations, genus Blastomycoides (<i>Blastomy-</i> <i>ces</i>).	Cryptococcoid type, viz., cells smaller with double contour absent or faint, and granulations very fine or absent.	I. Mycelium absent, ascospores ab- sent— Cryptococcus sensu lato . II. Mycelium absent, ascospores present — Saccharomyces sensu lato . III. Mycelium present, ascospores absent— Monilia sensu lato . IV. Mycelium present, ascospores .....present— Endomyces sensu lato .

TABLE III.

Key to the Principal Groups of Yeast-like Fungi (Budding Fungi).



Bussei, *M. metalondinensis*, *M. tropicalis*
and *M. macedoniensis*, which possess per-
manent biochemical characters.

Further details on classification of the
various species of the genus *Monilia* may
be found in the Manual of Tropical Medi-
cine (Castellani and Chalmers, footnote 3,
1918).

Pathogenicity and Virulence.—The sub-
cutaneous, intravenous or intrapulmonary
inoculation of some monilias into rabbits
does not produce any symptoms; other
monilias are virulent and cause the death
of the rabbit. It is interesting to note
that monilias with identical biochemical

reactions may vary enormously in their
virulence: some strains may be quite aviru-
lent, while others are exceedingly virulent.

PRINCIPAL CLINICAL TYPES OF BLASTOMYCOSIS SENSU LATO

All dermatomycoses due to "Yeast-like
fungi" (or Budding Fungi) come under
the designations *Blastomycosis sensu lato*.

- A. Mycotic infection deep:
 1. Blastomycosis Gilchristi.
 2. Blastomycosis Wernikeli.
 3. Blastomycosis Kartulisi.
 4. Blastomycosis Bussei.
 5. Blastomycosis furunculosa.

6. *Blastomycosis pyotica* (including *paronychia blastomycetica*, vel *moniliaca*, vel *cryptococcica*).

B. Mycotic infection superficial:

1. *Intertrigo blastomycetica*, vel *moniliaca*, vel *cryptococcica*, vel *saccharomycetica*.

2. *Cryptococcosis epidermica*.

3. Prickly heat according to certain authorities.

PRINCIPAL CLINICAL TYPES OF BLASTOMYCOSIS SENSU STRICTO.

The principal types of *blastomycosis cutis* are the following:

(1) *Blastomycosis verrucosa* (syn. *Blastomycosis*, Gilchrist type).

(2) *Blastomycosis ulcerativa profunda seu mutilans* (*Blastomycosis*, Wernike-Posadas-Ophül type or *Coccidioides* type or Californian type).

(3) *Blastomycosis purulenta profunda* (syn. *Blastomycosis*, Busse type).

(4) *Blastomycosis glutealis* (syn. *Blastomycosis*, Kartulis type).

(5) *Blastomycosis furunculosa* (syn. *Blastomycosis furunculosa*, *Furunculosis blastomycetica*).

(1) BLASTOMYCOSIS VERRUCOSA.

(Synonym: *Blastomycosis*, Gilchrist type.)

Clinical Symptoms.—This type is characterized by raised, roundish or oval patches with a verrucoid papillomatous or framboesiform surface, somewhat similar to tuberculosis verrucosa cutis, and in certain cases framboesia. The patches are not rarely surrounded by a violaceous halo. The following subtypes may be differentiated:

(1) Affecting usually the skin only, but may, in addition, in a later stage affect the mucosae and internal organs; found all over the world, but principally in tropical and sub-tropical countries—Gilchrist type, *sensu stricto*.

(2) Affecting solely or principally the oral or nasal mucosa; this type is especially common in South America. It is known also as South American oral blastomycosis or blastomycosis Lutz-Splendore type, and a description of it may be found in Castellani and Chalmers' "Manual of Tropical Medicine," third edition, p. 2084.

(3) Affecting the tongue, causing at times an enormous increase in the size of this organ (*macroglossia blastomycetica*).

(4) Affecting first the skin and later the internal organs, with symptoms of general infection and pyaemia (*systemic blastomycosis*).

To the above four subtypes a fifth one may be added to include a group atypical cases in which the granulomatous framboesiform pustules are practically absent and only gumma-like swellings and sinuses are present.

Etiology.—The fungi found are yeast-like fungi of the *Blastomyces* type (genus *Blastomycoides*, p. 261).

Diagnosis.—In many cases the diagnosis can be made on clinical grounds, but it should of course always be confirmed by mycological methods.

Treatment.—If the diagnosis is made at an early stage potassium iodide may at times induce a cure provided it is given in massive doses and for long periods of time.

Prognosis.—This is serious; if the diagnosis is made at an early stage and an appropriate treatment given, a complete cure may be obtained.

ILLUSTRATIVE CASES.

I will briefly quote ten cases among those I have had the opportunity of investigating.

Case I.—Mr. M. while in Egypt during the Great War, noticed a papule near the left angle of the mouth, which later became moist and was covered by a small yellow crust. Other papule appeared and a patch formed. He reported to the medical officer who suggested syphilis. The Wassermann reaction was negative; he had, however, a course of neosalvarsan without any benefit. During this treatment the condition spread

to the mucosa of the lips and later to the tongue. After leaving the Army he consulted various medical men some of whom suspected syphilis, others a tuberculide. Finally, in 1920, he went to see Sir James Cantlie, who kindly referred him to me. I suspected blastomycosis, and succeeded in growing a fungus, which recent investigation has shown to be very similar to *Blastomyces tulaneensis*. After several relapses he apparently recovered completely after a treatment of potassium iodide in large doses and vaccine.

Case II. (blastomycosis of the nose). Mr. T., of Bradford, consulted me in January, 1921; he had a rather large papillomatous mass on the left ala of the nose, with severe loss of substance. The condition had started during the war while the patient was in the Balkans, and had been considered a syphilide or a tuberculide. He had been treated with salvarsan, mercurial preparations and X-rays. I grew a fungus with characters somewhat similar to blastomycosis dermatitidis; in addition, a monilia-like fungus was grown with all the biochemical characters of *Monilia metalondinesis*. The condition yielded to potassium iodide in massive doses, but it took more than a year for a complete cure to be achieved.

Case III. (Mild type of oral blastomycosis).—Master N. four years ago showed white patches on the tonsils and oral mucosa, apparently very similar to patches of thrush. Later several flattened nodules developed on the mucosa of the lower lip with a papillomatous surface. For these patches various diagnoses were suggested and various treatments were carried out without any benefit. He consulted me two years ago. The surface of one of the patches was scraped and from the deep parts of the lesion a fungus was found with the characters of a monilia, biochemically similar to *Monilia metalondinesis*.

The characters of the fungus are briefly the following:—In the lesions only roundish budding cells are seen; in cultures a slight amount of mycelium is present. Milk not clotted. Gas produced in glucose, levulose, maltose and galactose.

Case IV. (blastomycosis of the tongue) *Macroglossia blastomycetica*.—In Ceylon, during the period 1903-1915, I observed three cases of a peculiar type of macroglossia of blastomycotic origin. Four years ago an interesting case of the same type was kindly sent to me by my friend, Dr. Broughton Alcock. The tongue was enormously enlarged and occasionally painful; the patient felt discomfort in eating and difficulty in speaking; he could not whistle; the surface of the tongue was somewhat roughened in places, but no very typical verrucoid patches were present.

Deep scrapings were made from the tongue, after drying and painting with tincture of iodine, and cultures were made. A fungus was grown, which I at first placed in the genus *Cryptococcus*, and later in the genus *Monilia*; *Monilia macroglossiae*. (For description of the fungus see page 264). A prolonged treatment with potassium iodide in very large doses and fungus vaccine induced an apparent cure.

Case V. Mr. N., a white workman in New Orleans, two years ago, developed verrucose patches on the hands and forearms and on the face. A fungus was grown with the characters of *Blastomycoides dermatitidis*.

Case VI. Mr. R. New Orleans. Typical patches on the face and arms. I was asked by Dr. Hopkins to investigate the case. A fungus was grown with the characters of *Blastomycoides tulaneensis*.

Case VII. Negro, New Orleans. Framboesiform lesions on face. I was asked by Dr. van Studdiford to investigate the case mycologically.

Case VIII. Mrs. B., New Orleans. Large verrucoid patches on the right forearm. A fungus was isolated with the characters of *Blastomycoides tulaneensis*.

Case IX. Mr. O. P., New Orleans. Typical verrucoid patches on the face. A fungus was isolated with the characters of *Blastomycoides tulaneensis*.

Case X. Young negro girl. Articular and periarticular lesions, gumma-like swelling and sinuses closely simulating tuberculosis. After a time she developed signs of broncho-alveolitis and of meningitis. At the post-mortem the lungs and all internal organs were found studded with white nodules of blastomycetic origin. *B. tulaneensis* was isolated.

(2) BLASTOMYCOSIS ULCERATIVE PROFUNDA.

This type was described first by Wernike. The ulcerative lesions are deeper and free prognosis is always had.

(3) BLASTOMYCOSIS PURULENTA PROFUNDA.

(Blastomycosis, Busse type; Blastomycosis subcutanea purulenta).

This type of blastomycosis is considered a variety of blastomycosis cutis for convenience sake. It is characterized by the presence of subcutaneous and deep abscesses, and purulent conditions of the bones, periosteum, and internal organs. The skin proper is not usually affected,

and the verrucoid framboesiform patches are absent.

Etiology.—The condition is caused by *Cryptococcus hominis* Vuillemin, 1901, a term which probably covers several varieties or even species.

Cryptococcus hominis Vuillemin, 1901.—(Synonyms: *Saccharomyces* (sp.? Busse, 1894; *Atelosaccharomyces bussebuschki* de Beurmann and Gougerot, 1909; *Atelosaccharomyces rudeli* de Beurmann and Gougerot, 1911).

Found by Busse in abscesses in a woman. In the pus the fungus presented itself in the shape of oval bodies, with a membrane having a double structure. These elements were arranged in groups, each group embedded in an amorphous substance and surrounded by a capsule. Culturally the fungus showed only roundish building forms, no mycelium, no asci. Growth on solid media generally white. Gelatin not liquefied. Glucose fermented Pathogenic to rabbits, white mice and dogs.

(4) BLASTOMYCOSIS GLUTEALIS.

This condition was described by Kartulis some years ago in Egypt. I have often observed it in Ceylon. The skin of the gluteal region—one nate or both nates—presents a diffuse induration, and in cribrated with the opening of sinuses, from which a thin pus exudes. The sinuses may be very deep and connected with each other, but in cases I have seen did not connect with the intestine. The pus does not contain grains, as is the case with actinomycosis. The patient may complain of pain and discomfort on sitting down. The disease is chronic.

Etiology.—The mycological investigation of the condition cannot be considered completed. The fungi found seem to belong to the genus *Monilia* and the genus *Cryptococcus*. One of them has been imperfectly described as *C. kartiulisi*.

(5) BLASTOMYCOSIS FURUNCULOSA.

Synonyms.—Folliculitis decalvans cryptococcica, *pro parte*, furunculosis cryptococcica; pseudofurunculosis blastomycetica; furunculosis moniliaca; furunculosis mycetica; folliculitis decalvans saccharomycetica; folliculitis decalvans moniliaca.

History.—Some years ago I described a peculiar type of blastomycosis indistinguishable clinically from ordinary furunculosis, which I called at the time "furunculosis cryptococcica," and as the condition in the first two cases affected principally the scalp under the form of a purulent folliculitis and loss of hair, I also suggested for it the term "folliculitis decalvans cryptococcica." To date I have seen five cases: three patients contracted the infection in Great Britain, and two in India.

Etiology.—The fungi found are yeast-like, and it is difficult to decide whether they belong to the genus *Cryptococcus* or to the genus *Monilia*. One of them (*Cryptococcus castellanii* Re) was fairly completely described by me, and later by Dr. Re, who named it *Cryptococcus castellanii* (p. 264). The strains of fungus isolated from the Indian cases are somewhat different from the organisms grown from the English cases, and differ also, though slightly, among themselves.

Symptomatology.—The clinical picture of this blastomycosis is totally different from the usual types of blastomycosis cutis, which are characterized by the presence of patches with vegetating capillary excrescences which give them a characteristic verrucose or warty appearance.

Furunculosis blastomycetica is clinically indistinguishable from ordinary severe furunculosis. Boils indistinguishable from ordinary boils, may be present on the face and body, but the region mostly affected, as a rule, is the scalp. In this region numerous pustules, flattened or conical, each pierced by a hair, may be seen; in addition, there may be infiltrated lesions

which somewhat resemble flat carbuncles, and later open and discharge through several openings.

The hair in the infected areas falls off, and patches of baldness, sometimes permanent, remain.

ILLUSTRATIVE CASE.

Mr. D., married, aged 34, a Dane who had resided in London for twelve years preceding admission; he was fond of all outdoor sport, and was a famous football player. The condition started in March, 1921, with apparently follicular pustules on the scalp, and two or three furuncular-like lesions on the forehead and face. Later, extremely painful carbuncle-like lesions developed. A bacteriologic examination of the pus was made at a well-known clinical laboratory in London, and *Staphylococcus aureus* was found. An autogenous staphylococcus vaccine and also a stock vaccine were given for eighteen months without any benefit. On the advice of his medical attendant the patient then came to consult me.

Apart from the boil on the left forearm and one on the supraorbital region, all the lesions were on the scalp; several patches of baldness, with the skin smooth and whitish, were plainly visible; there were also numerous follicular pustules, some flat, some conical, and most of them surrounded by a zone of hyperaemia. Two extremely painful carbuncle-like lesions, one not yet opened and the other with several openings discharging, were present. I made a bacteriologic and a mycologic examination. Microscopically, the pus contained only gram-positive cocci. The dextrose-agar tubes inoculated with the pus showed abundant growth of *Staphylococcus aureus*. The microscopic examination of the growth, however, showed here and there a yeast-like cell in several tubes. After plating and replating, this yeast-like organism was isolated with great difficulty. Later, I grew the same fungus from a number of lesions, some of which were unopened.

It was a cryptococcus with the following principal characters: Cultures on dextrose agar were abundant with a smooth surface, at first white and later yellowish. The fungus did not produce gas in any carbohydrate at first; later, it caused production of gas in dextrose and levulose. It was agglutinated by the patient's blood in high dilution (1 in 400). An interesting point arises: Which organism was the true causative agent of the condition, the cryptococcus or the staphylococcus? In my opinion, it was the cryptococcus, for the following reasons: *Staphylococcus vaccines* did not have any beneficial action whatever. The cryptococcus was agglutinated by the patient's blood, and the condition improved and finally dis-

appeared under a treatment consisting of massive doses of potassium iodide given internally, and a cryptococcus vaccine subcutaneously injected. It is well known that potassium iodide does not have any beneficial action on *Staphylococcus furunculosis*, it makes it much worse.

Diagnosis.—The diagnosis can be made only by mycologic method. In all cases of persistent furunculosis that do not answer to staphylococcus vaccine, the possibility of furunculosis blastomycetica should be kept in mind.

Prognosis.—The disease does not have a tendency to spontaneous cure.

Treatment.—Potassium iodide in large doses, given for long periods, often induces a cure. A vaccine prepared with the fungus seems to be useful, but used alone is not sufficient to bring about a cure.

PERIONYCHIA CRYPTOCOCCICA VEL MONILIACA.

Synonyms.—*Perionychia saccharomycetica*; *Perionychia mycetica*; *Perionychia blastomycetica*.

In patients suffering from Blastomycosis furunculosa a painful type of perionychia may develop associated with the presence of budding fungi usually of the genera *Monilia* and *Cryptococcus*, occasionally of the genera *Saccharomyces* and *Debaryomyces*. At times the lesions come to supuration, at times the parts remain inflamed and painful for months but no supuration develops.

SUPERFICIAL TYPES OF BLASTOMYCOSIS SENSU LATO CRYPTOCOCCOSIS EPIDERMICA.

Synonym.—Blastomycosis epidermica.

Remarks.—Blastomycosis epidermica was described by me in Ceylon some years ago. Clinically, it has nothing to do with the usual types of blastomycosis, but it may be called blastomycosis, as it is caused by a yeast-like organism.

Synonyms.—*Saccharomyces epidermica*; *Cryptococcus epidermica*.

History and Geographical Distribution.—While in Ceylon, I noticed on the skin of one of my bungalow servants several

brownish, dirty-looking patches, which looked very much like dirt. He told me, however, that they did not disappear when soap was used. I made scrapings and saw that these patches consisted of a large number of budding cells which I believed to be *saccharomyces*. I found the same patches not only in other natives but also in Europeans, especially on the chest and arms, and I called the condition "*saccharomycosis epidermica*." I did not succeed in growing the fungus. Chalmers and others confirmed my observations in the Sudan and North Africa, but the organism has not yet been cultivated.

Etiology.—The causal organism is *Cryptococcus epidermidis* Castellani, 1914.

Symptomatology.—The condition is fairly frequent in natives and Europeans who have resided for some years in the tropics. It is characterized by the presence on the arms, and more rarely on the chest and neck, of small, roundish, dirty, yellow or brownish patches, which can generally be removed by thorough scraping. These patches consist of large numbers of blastomycetes-like elements of various sizes, rounded or oval, which, so far, have not been cultivated.

Clinical Variety of Blastomycosis Epidermica.—Blastomycosis (*cryptococcosis*) *epidermica alba* and *rosea*; white patches, consisting solely of yeast-like fungi, without inflammatory signs, are occasionally seen, especially in natives. I have grown the fungi several times; they belong to the genera *Cryptococcus*, *Saccharomyces* and *Monilia*. In a case with pinkish patches, a *cryptococcus* was present which when cultivated on laboratory media gave rise to pink colonies.

INTERTRIGO CRYPTOCCICA VEL MONILIACA.

INTERTRIGO BLASTOMYCETICA AND DERMATITIS

BLASTOMYCETICA INTER DIGITALIS.

(*Synonyms*).—Intertrigo *saccharomycetica*; intertrigo *cryptococcica*; intertrigo *moniliaca*.)

Intertrigo blastomycetica was first described by me in Ceylon in 1907. In Europeans, the affected skin—usually the skin of the inguinal region—is reddened, and there may be a slight exudation. The border of the eruption may be fairly well marked, but it is not distinctly raised. In many cases there is not much itching. In 1907, in scrapings, I found a yeast-like fungus which I called *Saccharomyces samboni*. In other cases I found organisms of the genera *Monilia* and *Cryptococcus*. In recent years a similar condition, *saccharomycosis* or *blastomycosis interdigitalis*, has been described by several observers, and I have seen some cases myself and Pollaci has called one of the *cryptococcus*-like fungi found in it *C. interdigitalis*. In the majority of my cases an *epidermophyton* was present in addition to numerous yeast-like bodies, that is, in superficial scrapings only yeast-like organisms were present, while in deep scrapings the yeast-like fungus disappeared or was extremely scanty and an *epidermophyton* was present.

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DISCUSSION.

Dr. C. C. Bass (New Orleans): I feel unable to add any discussion to this paper by Dr. Castellani, who is generally recognized as one of the world's authorities on this subject. I wish to comment on the fact that since Sir Aldo came to New Orleans and has directed attention to these diseases due to fungi, we have come to recognize that there is a very much wider distribution and greater prevalence than formerly had been recognized. They have been overlooked to a large extent, and while Dr. Castellani does not attach so much importance to them, there is no doubt but that they are of a great deal of importance.

I should like to emphasize the fact that discovery and diagnosis of these diseases is dependent upon proper microscopic and laboratory examinations. It is the proper and constant use of these methods which has enabled Dr. Castellani to recognize and demonstrate the prevalence of these diseases due to fungi which had formerly been overlooked, to some extent at least.

Dr. Foster Johns (New Orleans): I am afraid that Dr. Bass' apology will have to apply to me as well. Dr. Castellani has covered this subject very thoroughly.

I have observed that the incidence of the disease in the population in the Charity Hospital of New Orleans is approximately one per thousand, so that blastomycosis is certainly not a negligible disease, and yet ten years ago it was practically unrecognized.

From a public health standpoint the prevention of blastomycosis would be most difficult, from a general standpoint, and certainly resolves itself purely into a question of early diagnosis with proper treatment and safeguarding of the spread of the disease in those individuals who are found to be infected. While it has not been proven that the blastomyces does not exist in nature or as a parasite of some plant or putrefying foodstuff, I must believe that the parasite is limited to human tissue and that the disease is transmitted from patient to patient. The majority of the cases I have seen were apparently contracted from contact with other patients.

I know of no disease where it is more necessary to make a diagnosis by direct microscopic examination, looking for the organisms in digested scrapings of the granulomatous lesion or in histologic sections obtained from the lesions. It is necessary to suspect the disease first and then every effort should be made with microscope to prove the diagnosis. Another point that Dr. Castellani did not cover in much detail is the fact that in a goodly proportion of these cases, if allowed to remain untreated for any length of time, metas-

tasis will occur to the visceral organs and particularly the lung and pleura. Cases of bronchiectasis and other pyogenic diseases of the lungs in which tubercle bacilli are not found should be searched carefully for blastomyces. Reliance should not be placed on cultures. The sputum or pleural exudate should be digested with an equal part of 10 per cent potassium or sodium hydroxide and allowed to digest for an hour, the material then being centrifuged and the sediment searched for the characteristic double-walled, yeastlike, budding fungi.

Question: I would like to ask Dr. Castellani whether potassium iodide should be given in gradually increasing doses up to the massive dosage that he recommends or does he immediately begin with the enormous doses that he recommends in a general way, and, further, how long can a patient tolerate the enormous doses that he deems as being needful?

Dr. J. A. Devron (New Orleans): I have the honor and the pleasure of being on the staff at the Charity hospital. Before letting this subject pass, I thought I would get on the floor and let our general practitioners know a few general conditions of the skin, which they might confuse with the blastomycosis, and other diseases which they might pass over. If you gentlemen get an ulcer of any part of the body, clear cut, I would not blame you if you would call it a luetic ulcer, even if a Wassermann were made and the Wassermann would not verify that statement.

On the other hand, if you have walls sloping like a volcano on the moon, you could expect that you have a blastomycotic lesion. Sometimes you get another sore which might look like an old boil, lots of sinuses, the top is soft, but you say to yourself, "that is not a carbuncle, because the surrounding tissue is different." Then you have to appeal to the laboratory man, but do not depend on the pus, you must have scrapings for certain types of blastomycosis. You will not find the granules or germ in the pus, you have to get it from the surrounding tissues. Sometimes we get a lesion that looks like ringworm; it may be tuberculosis of the skin or lues. If you suspect tuberculosis of the skin, and if you want to be exact, let the laboratory man make scrapings, see if you find the tuberculosis bacillus. You also have cutaneous scrapings made to see if it is blastomycosis or not. Suppose you suspect lues, again send for the laboratory man to determine whether it is luetic or not.

As regards treatment, I have been taking up skin diseases for five years, and in the last three years I have run across a lot of these cases. I did not recognize them years ago. Regarding treatment I have come to the conclusion, like

Dr. Castellani, that we waste valuable time if we start with small doses of iodide of soda.

If the people are in the hospital and I can get proper technic, I get quicker results by giving iodide of soda in a sterile solution, starting at five grains increasing it up to forty grains at a dose by the intravenous route. The results are remarkable.

Dr. Aldo Castellani (New Orleans): I am in complete agreement with Dr. Bass, not with regard to the very kind compliments he has paid me, but with regard to the importance of blastomycosis and other fungal diseases, and also to the importance of a microscopical examination. When I say that, in many cases the diagnosis can be made on clinical grounds, I did not for a moment mean that the clinical observation alone was sufficient to make the diagnosis an absolute certainty.

I quite agree with Dr. Bass and Dr. Johns that a microscopical examination, and I would go farther, a cultural examination, is essential. With regard to the frequency of the condition, the remarks made by my friend, Dr. Johns, are very interesting. I did not know that the disease was as common as that in Louisiana, although I have come across quite a fairly large number of cases.

With regard to the blastomycosis affecting internal organs, I agree with Dr. Johns that this is a very important point, and, as a matter of fact, in my paper there is a section on it. It is very important from a practical standpoint of view to come to the conclusion whether the internal organs have already been affected or not.

If the lungs and other internal organs have not yet been affected, provided that proper treatment is given, the prognosis is fairly favorable, comparatively speaking, of course, but if the lungs are affected, or if any of the internal organs are affected, then the prognosis is very bad; in fact, I should say, hopeless.

Those cases we have seen at the Charity hospital, if they had any lung or bronchial complications, none of them recovered. In this connection, I should like to express my thanks to Dr. Menage and Dr. Hopkins and Dr. Talbot, and the other members of the dermatological clinic for their kindness in allowing me to investigate their cases.

With regard to the question put forward by the third speaker, whether I give potassium iodide gradually, by increasing doses, or whether I start straight away with huge doses, I generally start with the large doses immediately. The disease is so serious, and the only chance of recovery in my experience resting upon giving huge doses of potassium iodide, that in practically every case I

begin by giving thirty grains three times a day, and after two or three days I go to one dram three times a day. In this connection, I might say, I have found it useful to combine the iodide treatment with an alkaline treatment. A mixture which I have found extremely useful is the following:

Potassium iodide one dram, bicarbonate of soda thirty grains to one dram, glycerin one dram, syrup one dram and water to an ounce. That is one dose. I give it well diluted with water three times a day.

DIET—AN IMPORTANT FACTOR IN HEALTH AND DISEASE.*

ALLAN EUSTIS, M. D.,

NEW ORLEANS.

For fifty years we have been dieting, or feeding our horses, pigs and cows on a scientific basis, and the most ignorant farmer is in a position to obtain data from the State Department of Agriculture as to the best food suited for the particular animal on his farm. However, it is astounding to think that attention to the feeding of the human being has only been within my limited experience. I might say that the work of my former Chief, Professor Chittenden, did as much as any one else to focus the attention of the layman to this important feature of medicine, as well as hygiene.

In 1898, I was associated with him in the work which he did for the United States Army, in which he showed that the soldiers could do better and more efficient work on but one-third of the amount of protein that they were then being given as a ration. Later we find that, due to this, certain individuals went to the other extreme, and they cut the protein intake to such an extent that certain definite diseases were manifested. Chamberlain and Vedder, working in the Philippines, established the fact that beri-beri was caused by a deficiency in the diet of something which was contained in rice polishings.

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

During this investigation, Casmer Funk was able to extract from the polishings from rice, a substance which he identified as an amine, and inasmuch as the introduction of this substance into animals or human beings that were prone to develop beriberi, prevented its development, he called this substance vitamin. We now know it was not an amine as these essential foodstuffs that we recognize now under the general term vitamins, are not really amines, and they are probably none of them of the same chemical composition. However, the important fact that was brought forward by Chamberlain, Vedder, Funk and others was that, beside the protein, fat, and carbohydrate, there are essential substances that must be taken in the diet in order for our tissues to properly metabolize these fundamental foodstuffs. Since then, through the work of McCullom, Mendel, Osborne and others there have been identified four vitamins. McCullom was the first to bring out the fact that there was one of the vitamins soluble in fat and found especially in cod liver oil, the so-called fat soluble vitamin "A."

Mendel and his co-workers showed that yeast contained large amounts of water soluble, or vitamin "B." Today, we find large amounts of literature circulating through the medical profession and also to the layman, laying a great deal of stress upon these vitamins; the yeast being lauded as the cure for all ills, and cod liver oil and different extracts of cod liver oil also as a cure for all.

It is well for the profession to bear in mind that these vitamins are in nature well distributed, and an individual living a normal life and not living on canned goods, is in no danger of developing a disease, due to the vitamin deficiency. Nature, fortunately, has provided us with ample vitamins in its copious supply of foodstuffs throughout the country. The important factor to remember is that all the vitamins, whether they be "A," "B," "C" or "D," are destroyed by heat, and that is why a diet exclusively of

canned goods will show evidence of a deficiency. Diet is a public health question and it should be the duty of the Boards of Health to distribute knowledge regarding diet to the layman, because we see now that whereas liver, which was spoken of as the poor man's beefsteak, could be procured for ten cents a pound, has now risen to forty cents a pound, why? Because, due to the work of Miner, Whippel and others it was shown that blood regeneration was stimulated by something that was contained in liver, overlooking the fact that kidneys, as well as fresh meat, contained this substance. Striped muscle fiber contains it, but not to the extent which liver does.

There is no doubt that giving liver to an individual with primary or secondary anemia does stimulate their blood cells, but the profession, as well as the layman, should be warned that whereas you may be attempting to restore your blood count to normal, that if that individual has a damaged liver or damaged kidney such a diet of a pound of liver per day may be distinctly injurious. We must individualize in dieting, as well as in the prescribing of medicine.

There is no doubt that nature can repair damage to certain tissues if spared work by suitable diet. They are paying a great deal of attention in the public schools to diet, from a caloric standpoint, but it is not so much a question of calories, as it is a question of quality. The layman should know what is to be expected when he eats a piece of meat or drinks a glass of milk. It is well for them to know the chemical changes that take place. Unfortunately, few of the physicians know it, so, again, I say that the question of diet is one of public health. We see the trend of thought today by the numerous editorials that you find in the Journal of the American Medical Association.

I can remember when I first started the practice of medicine, when no attention at all was paid to diet. Today, there is hardly a number of the Journal that comes out in

which there is not an editorial on diet. There are certain fundamental facts that the physician often overlooks in the diet of his patients, notably (a) the fact that the percentage or the amount of protein intake should be in direct proportion to the amount of muscular effort the individual is exerting, (b) that protein in the diet is given primarily to replace worn out tissues, presupposing, of course, that sufficient calories are given in the form of carbohydrates and fats so as to spare burning up of the tissues.

Now, in an individual in bed, at rest, his protein needs are very, very little, and his diet should be calculated on a basis of restoring the amount of fuel lost by dissipation of heat. The individual with fever, therefore, will require relatively more calories or more fuel heat units than the individual with a normal temperature, but both of these individuals require one-third as much protein as when they are up and about.

Now, this is a fact that many physicians overlook, and they further overlook the fact that protein ingested over the needs of the body throws unnecessary work not only on the liver, but on the kidneys.

Another point that the physicians often overlook, especially in the treatment of inflammatory conditions of the intestinal canals, is "what happens to a particular meal when it is eaten? How much residue?" There is no doubt that the average physician would consider the advisability of resting his patient if he has a sprained ankle; if he has a decompensated heart, he will put him to bed; but when he has an inflamed condition of the intestinal canal he pours milk into it, or other foods with large amounts of residue.

In the treatment of these diseases, notably in amoebic dysentery, it is surprising how much more rapid the relief will be, if the individual is kept on what we call a "soluble" or low residue diet.

There are some interesting experiments that have been carried on recently, in which

it is surprising to know that as far as the residue of the diet is concerned *milk* leads the top as giving *more residue*, and that a hard-boiled egg will give less residue in the intestinal canal than a raw egg. The reason of this, I will not go into it, is on account of the fact that the raw egg has an anti-ferment in it, and it is more difficult to digest. These are points I want to bring out as claiming the attention not only of the Medical Profession, but the layman.

A point that enters into this question from a public health standpoint is the recent rise, I won't say recent, but the past quarter of a century, in the consumption of sugar. It will astound you to know that in 1823 the per capita consumption of sugar in the United States was nine pounds, while in 1924 that amount had risen to one hundred and ten pounds per capita. Whether this large consumption of sugar will necessarily overwork the pancreas, will increase diabetes, remains to be seen, but, certainly, this one factor will impress upon you that diet is a public health question.

Time will not permit me to go into the various types of diet indicated in the different diseases, but I again wish to emphasize the fact that let us pay more attention to diet and probably we will have fewer diseases to treat.

DISCUSSION.

Dr. J. E. Knighton (Shreveport): Mr. Chairman and Members of the Louisiana Medical Society:

I have listened with interest to Dr. Eustis' paper, and I fully agree with the statement made by him that the question of diet is not simply a question to be dealt with in reference to disease, but must be considered as a public health question.

I think the members of the medical profession, with few exceptions, have neglected the study of dietetics in a serious way. I believe that the development of insulin for the treatment of diabetes has done more to stimulate the study of this subject than anything else, for the reason that it is impossible to use insulin intelligently without a proper study of the patient's dietary requirements.

I am sure that Dr. Banting did not realize while he was developing insulin he was likewise stimulating an enthusiastic study of dietetics by the profession at large.

I think it is the duty of the medical profession to teach the public along the lines of diet in relation to public health. This may be done by private and personal contacts as well as by properly prepared articles for the public press and by public addresses on proper occasions.

There is much rubbish regarding diet served to the public by faddists that it is up to us to interpret these fads and fancies properly for the people and give them instead more sane and wholesome information on the subject.

I think we can take Dr. Eustis' paper as a profitable lesson to ourselves, and then we should pass it along to the public.

Dr. D. O. Willis (Leesville): I am not going to discuss the question of the disease itself, I am just going to discuss a little bit the question, or to drop the thought that might bear fruit, of how we are to get this knowledge to the people, relative to the prevention of cancer, and the question of diet, as spoken of in the previous paper, Dr. Eustis' paper, and I bring this thought because of the fact that I live, myself, and work in a country where literature cannot very satisfactorily serve the purpose of getting this knowledge to the people, because of the fact that there is a large number of people in the rural district of this state, others, I suppose, that do not read, lots of them that cannot read, unfortunately. We hope, of course, that in just a few years this will not be so, but we know now that it is.

If you put the proper literature in their hands, they would not read it, lots of them, even though they could, and lots of them cannot. So, just how are we to get this knowledge to the people? I would ask that as a question to the essayists, and to men, perhaps, of broader experience than I have. We cannot advertise, and just how shall we do it is the thought that comes to my mind.

Now I have thought of this as a possible plan, that by some means, from some source, that there be lectures and talks carried to these people in the rural districts. Perhaps, to the schools, by inviting the public to attend such lectures. I have thought about it, as a duty, perhaps, with the local health officer, or especially where we have the health units in various parishes, fixing it as a duty that he would invite the public to meet at some place, perhaps the schools would be the best place, and visit those institutions or those places at least once a year, every school, or every designated place, and if he is not capable of delivering an intelligent address, have the proper literature in his hands, coming from the proper sources, and read it to the people, and do what might be done in that way. But, I just wanted to suggest this thought, in order that there might perhaps be some plan worked out to get this knowledge to the public, that they might understand.

Dr. S. B. Wolff (Opelousas): The science of dietetics is always a very timely subject at any meeting of physicians. The early doctors recognized that diet was one of the chief adjuncts in both the prevention and cure of disease.

Among the diseased conditions, today, that are met along dietetic lines I might mention tuberculosis, diabetes, scurvy, beriberi, and, in addition, we believe that diet is an etiological factor in the causes of high blood pressure and nephritis. Science is undergoing, of course, rapid changes, to the betterment of the profession. In a discussion of diet, I think that some recognition should always be paid to the group of our profession, namely, the pediatricians, the workers who approve the babies, the young people, so that we might safely say, in future, the race in general will be improved through their efforts.

I have especially enjoyed Dr. Eustis' paper and coming from a man who has made a big study of dietetics it should have great effect.

Dr. Allan Eustis (closing): I have nothing further to say, Mr. Chairman, except to thank Dr. Knighton and Dr. Wolff.

SOME OF THE PROBLEMS OF AN INDUSTRIAL SURGEON.*

DAVID WALLEY, M. D.,

LUMBERTON, MISS.

I am presenting a short paper giving you some of the problems that I have had to deal with as an industrial surgeon. It is not my purpose to write a scientific paper but to deal with the problems connected with the handling of sick and injured employees of industrial plants and the prevention of accidents. Industrial surgery today is indeed a specialty though not so recognized by the profession. The larger corporations throughout the country have in recent years given more attention to the medical services of their employees than in former years. Especially is this true since the World War. The after effects of the World War have proven one thing if nothing else—and that is that it is an expensive proposition to the employer when an individual is physically unfit to fill the position for which he is

*Read by title before the Mississippi State Medical Association, Meridian, May 10-12, 1928.

employed. The American Government today is spending millions upon top of millions of dollars caring for the veterans of the World War and other wars because they accepted into the service men who were physically unfit. Those of us who saw service in the World War have profited by the mistakes or should have profited by the mistakes made by us in examining men for the Army, and ought to be now able to render corporations a real service in assisting them in securing suitable employees, physically, mentally, and morally.

To be a successful industrial surgeon, one must possess five distinct qualifications: First, he must be a diplomat, because he has to deal with employees who in a great many instances are biased against company doctors; second, he must be a good diagnostician, because his competitors will put him to the acid test almost daily; third, he must be a competent surgeon, because both employer and employee demand good work; fourth, he must have a working knowledge of orthopedics, because a majority of his major accidents are injuries to the bony parts, and, fifth, he must be well versed in medical jurisprudence, because he is a victim of court procedure. The industrial surgeon must be equipped with hospital facilities to handle his sick and accident cases. The hospital must be equipped with a complete roentgen-ray (including a portable) and clinical laboratory. He must also have a fracture table and almost every orthopedic appliance known to man, including physiotherapy. The hospital where the sick and injured are cared for must be under competent management in order that patients may have the best attention possible and that the employer may have the protection against the encroachment of shyster lawyers.

I am going to give you an outline of the system used by the Mississippi Southern Railroad and the Edward Hines Lumber Company, which I have the honor to serve as chief surgeon. To secure employment

the man files his application at the general office of the company and he gives then a brief history of himself and his previous employment. This is recorded on one side of a card and the other side of the card is used for recording his medical examination. If his application is approved at the office for employment, he is then referred to one of our physicians, who makes a thorough physical examination. If he is physically fit, he is given an okay and returned to the office for his work card. In making these examinations, there are certain physical defects which we consider disqualifying, namely: poor vision, deafness, the loss of a leg or arm or parts of same which would give him a handicap, tuberculosis, any kind of hernia, hemorrhoids, varicosities, and any active venereal diseases. All minor defects, though not disqualifying, are recorded on the examination card in order that the company may be protected should any of these later become active and the employee claim the company liable. These examination cards are filed for permanent record. If an employee leaves the service of the company, even though for one day only, he is required to report back to the surgeon for examination before re-employment. An employee may be ordered up for re-examination when he is suspected of being physically disqualified to fill the position which he is holding. If his work is satisfactory, he may be given employment in another department where he is physically fitted to work.

The Medical Department of the Mississippi Southern Railroad and Edward Hines Lumber Company consists of a 50-bed general hospital, a chief surgeon, four physicians distributed over the works, and three consultants. We have one nurse assigned to duty outside of the hospital. The doctors over the entire operation work in very close conjunction with the safety department. Monthly foremen's meetings are held at all headquarters and departments and either the chief surgeon or local

doctor attends these meetings. The accidents of the previous month are gone into and discussed as to what caused them and what could be done to eliminate further accidents of the same nature. Every foreman who is more than a quarter of a mile from a doctor's office, is supplied with a complete emergency kit and given instructions as to how to apply first aid. If an injury occurs and it is of sufficient seriousness in the opinion of the foreman, the man is immediately sent directly to the hospital without consulting the local doctor. If the injury is minor, he is given first aid attention and then referred to the local doctor. Every 90 days the foremen are brought together and given new methods of first aid and often compete in demonstrations of the best and quickest first aid given a serious injury. Our safety department is in charge of an engineer who makes a weekly inspection over all departments on every location that the company is operating. An active campaign was started on the Edward Hines Lumber Company works June 1, 1926, and as a result, a reduction of accidents of 15 per cent was accomplished after six months of safety work—that is, in 1926 over 1925. By an intensive safety program being put on over the entire works in 1927, the results show that the reduction in injuries, no matter how trivial, was 48.9 per cent over those of 1926. The reduction of lost-time accidents was 42.41 per cent. Where we used to have from 100 to 150 injuries every month, we are now having less than 20 per month, with the same number of men working under the same conditions, and not 1 per cent of these are serious injuries. Even with the low mark of 1927, the first four months of 1928 have shown a reduction of 75 per cent below those of the first four months in 1927. If the industrial surgeon on any works will work closely in conjunction with the foremen and have an understanding with them he will in a large measure share the reduction of accidents over his location. The foremen cannot do much unless the doctors back them up in

their accident-prevention work. Every doctor on my location is backing the safety department 100 per cent, and, as a result, the above results have been obtained.

I find that most of my trouble comes from neglected minor injuries or those considered minor by the local physician. It has been my experience that neglected first aid to minor injuries causes a high percentage of serious injuries and converts what should not have been a lost-time accident into a lost-time accident; therefore, we must keep in behind those responsible for rendering first aid and see that these injuries are promptly cared for. For instance, a man gets a foreign body in his eye. The local surgeon examines it and thinks that he has removed it. The man returns to work and in two or three days he turns up with a much inflamed eye and has to go to the hospital where an roentgen-ray examination shows a piece of steel in the anterior chamber of the eye. The man develops traumatic cataract and loses his eye, the medical service is criticized, and the company pays out five or ten thousand dollars because of the failure of the local doctor to give serious consideration to all eye injuries even though they apparently be minor. All head injuries, even though they be simple, should be sent to the hospital for roentgen-ray examination. So many times we find a man who suffers a slight blow to the head and returns to work only to fall out and is then sent to the hospital where roentgen-ray examination shows a fracture. I recall one neglected minor injury case recently where a man working in the machine shops had a slight abrasion on one of his fingers and continued to work without calling for first aid until the day's work was done. He developed a severe infection and came very near losing his arm and is now suffering with a stiff hand and has been off duty for more than two months. If this man had gone to his first-aid kit and touched this wound with iodine and applied a bandage, he would not have developed infection.

At this point, I wish to pay my respects to the insurance feature in accident work. I find where a man or corporation is carrying insurance for employees that it will require three times longer to cure him than it does the man who has no insurance. Then we have to deal with the malingerer, who, with the slightest injury, will claim internal injury and, regardless of treatment, just won't get well.

In conclusion, the careful selection by the foremen of the employees and the thorough physical examination by the physician will aid materially in reducing accidents and the prevention of law suits. The whole-hearted co-operation of the surgeon with the safety department and with the foremen will reduce the lost-time accidents and also the surgeon's work. The attitude of the employer to employee is of the greatest importance—that is, the employee must have confidence in the employer, feeling at all times, that he will get a square deal when sick or injured (this confidence we have in our organization). And immediate attention to all injuries, no matter how trivial, will reduce the time of lost-time accidents to the minimum.

CLINICAL EXPERIENCE WITH IRRADIATED ERGOSTEROL—It is the opinion of Alfred F. Hess and J. M. Lewis, New York, that irradiated ergosterol is by far the most potent of the antirachitic agents. It is an absolute specific. Cod liver oil in the amount in which it can be given is a specific of limited dependability—only moderately effective for the average infant, uncertain in action for the rapidly growing infant, and ineffective for the premature. Irradiated ergosterol is quite as valuable in tetany as in rickets, and in both disorders is remarkable for the rapidity as well as for the reliability of its action. As yet, however, no sufficient clinical experience has been had to define its proper dosage. Furthermore, the various preparations cannot be evaluated, as they have not yet been assayed on the basis of the number of "curative units (rat)" which they contain. The amounts now recommended and employed are unnecessarily high, as shown by the fact that they induce an excess of calcium and inorganic phosphorus in the blood in the normal as well as in the rachitic infant—hypermineralization.—*Jour. A. M. A.*, 91: 783-788, 1928.

SPINAL ANESTHESIA.*

J. K. AVENT, M. D.,

GRENADA, MISS.

In presenting this paper for your consideration, no attempt is made to add anything new in the way of anesthesia. That major surgical operations under spinal anesthesia have long ago ceased to be experimental procedures can not be denied.

I shall not urge you to use spinal anesthesia for its use may bring you criticism and worry. The easy path is the well trod path. But I should like to show if you care to take the trouble to master the technique you will have at command in its field, the safest anesthetic, the quickest anesthetic, the most relaxing anesthetic of which we have knowledge. But you will assume more personal responsibilities and will incur some criticism from the doctors, not the laity. Those who use it are ardent admirers of spinal anesthesia. If you have never operated with spinal anesthesia, you do not know what perfect relaxation is. The first time it is used, you will immediately say it is the ideal anesthetic.

HISTORY.

Dr. James Leonard of New York did the first experiments of spinal anesthesia in October, 1885. Dr. Augusta Bier first used it in surgical cases on man by experiments upon himself and associates. Deaths were soon reported because of the uncertain and toxic effects of cocaine and the method lost favor everywhere.

PHYSIOLOGICAL ACTION.

Transient root interruption is the physiology. Blocking of posterior roots occurs with consequent analgesia and loss of tactile, muscle and temperature sense. The anterior roots with the associated white rami communicantes are also blocked, causing transient motor paralysis and, especially important, transient vasomotor paralysis. The posterior root block is

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essential, that the operation may be painless; anterior root interruption is desirable that the operation may be done with the ease and facility that complete muscular relaxation affords. The interruption of the white rami, while it reduces bleeding and favors intestinal contraction and peristalsis, leads to a slowing and weakening of the heart action and a fall in blood pressure that may be hazardous. As the white rami through which the sympathetic impulses are conducted to the entire body are associated only with the anterior roots from the second dorsal to the third lumbar, it is evident that, if the anesthesia involves the lower lumbar and sacral roots, there will be little or no effect on the blood pressure, but if the fibers supplying the great splanchnic vessels and those of the upper part of the body are effected, a great fall in blood pressure results. A blood pressure fall of twenty to thirty millimeters is moderate, while thirty to fifty is not unusual, and a fall in the systolic in the radials to zero is occasionally seen. This fall in pressure which usually lasts but from fifteen to thirty minutes, may be combatted by introducing fifteen minims of the solution of adrenalin chloride, 1-1000, intravenously. Its action here is almost a specific.

Some of the operations that may be performed with spinal anesthesia are: thoracotomy, gall bladder work, Caesarian section, amputation of the hip, and setting of bones of the lower extremities.

TECHNIC.

The point of injection is figured out according to the operation. You may go as high as the space between the 11th and 12th thoracic. As a rule you need not go higher than the 12th thoracic and first lumbar. Most cases will give complete anesthesia between the 1st and 2nd lumbar. The skin is injected with 1 per cent novocain, and the spinal needle passed with as little trauma as possible. When you get clear spinal fluid draw from 2 to 6 c.c. fluid, mix this with apothecin, or novocain, then

inject this back into the spinal canal. Do not pump your fluid back and forward in the syringe, if you do you are more apt to push it too far up the spinal canal. You can have the patient either in the sitting or lying position. As a rule your anesthesia is immediate and you are ready for work. Sometimes lowering the patient's head will assist you in more complete anesthesia. I always have the nurse keep her finger on the patient's pulse for the first ten minutes, and she has adrenalin ready if it is necessary. It is seldom needed. I now give 50 mg. of ephedrin sulphate subcutaneously 20 minutes before the spinal puncture. The action of ephedrin in spinal anesthesia is very similar to that of adrenalin, but is very much more prolonged. Its effects are produced by stimulation of the sympathetic nervous system, and are produced peripherally and not centrally. The rise in blood pressure is due to vasoconstriction and cardiac stimulation. Ephedrin also stimulates the stellate ganglia. With ephedrin, a greater proportion of the rise in blood pressure appears to be due to cardiac stimulation, than with adrenalin. While medicinal doses of ephedrin stimulate the heart, toxic doses depress it; and death is due to cardiac failure following clonic convulsions. Moderate doses sometimes cause extrasystoles, and acute cardiac dilatation. If the blood pressure has been lowered by the spinal puncture, the rise is less pronounced and the heart is more susceptible to the depressing action. Ephedrin dilates the pupils and relaxes the bronchial and intestinal muscles. With repeated doses the effects are cumulative, and tolerance is not established. There is a wide margin of safety in dosage, as the lethal dose is 35 to 100 times the physiologic dose. It may be given intravenously, subcutaneously, or by mouth. The effect is the same, but progressively slower and less intense by the last two methods. The similarity of ephedrin to adrenalin in action—the vasoconstriction, the marked

cardiac stimulation with the pronounced rise in blood pressure, and the fact that it acts peripherally and therefore is effective during the paresis of spinal anesthesia—at once suggests its use, to counteract the fall of blood pressure in this anesthesia.

DISADVANTAGES.

1. It may require resuscitation measures which should be at hand.

2. Certain patients are bad risks, notably those in shock or collapse, low blood pressure (systolic below 100), and those with pleural effusions or new growths.

3. Obese and elderly patients have a greater fall in blood pressure.

4. Not being a method of universal use it invites criticism.

5. No absolutely safe drug for spinal anesthesia has yet been found.

6. Neurotics may blame some of their post operative symptoms on spinal anesthesia.

ADVANTAGES.

1. Perfect and complete anesthesia in nearly all cases.

2. The bowels become flat and lose their tendency to crowd the operative field, which is a most precious symptom.

3. Produces a negative abdominal pressure so you can easily explore the entire abdominal cavity. (In peritonitis quite often the relaxation from the anesthesia will cause the patient to have an evacuation of the intestinal tract while patient is on the table.)

4. Less bleeding due to fall in blood pressure. Hemostasis must be perfect.

5. Normal diet restored earlier.

6. Rarely vomiting and no gastric disturbances, no lung and kidney complications.

7. The sutures are left undisturbed and produce a neater scar.

8. Spinal anesthesia simplifies surgery by establishing the most favorable condition for clean operation and reducing to a minimum the operative and post-operative risk.

9. Cheapens and reduces operating room work at time of operation at least 20 per cent.

10. The ideal anesthesia for tubercular patients who do not have a low blood pressure.

11. Rarely is it contra-indicated in kidney and heart disease. It is especially of value in high blood pressure patients.

12. It is more reliable than this paper would lead you to believe.

13. It is not new and will stand any law suit.

14. Hastens the operation

DISCUSSION.

Dr. S. W. Johnston (Vicksburg): I enjoyed this paper very much and I would like to suggest a preparation that we have been using the last two or three months that has given perfect satisfaction. The preparation contains 195 milligrams of novocaine, 3 drops of starch water, 1/30 grain of strychnin, 3 drops of alcohol and 2 to 3 drops of 1 per cent solution of ephedrine sulphate in 2 c.c. of normal salt solution. We used a long needle of 18 to 22 gauge with a very obtuse bevel. The specific gravity of the spinal fluid is almost exactly the same as this solution. We have never had any bad effects from it. It does not lower the blood pressure and the absence of shock is very noticeable. We draw off about 3 c.c. of the spinal fluid first, then draw 3 c.c. into the syringe with the novocaine mixture, gradually injecting it into the canal. The strychnin combined with the ephedrine sulphate prolongs the anesthesia as well as prevents the lowering of the blood pressure. Ephedrine has an advantage over adrenalin in that the effect is more lasting.

Dr. H. A. Gamble (Greenville): I do not like to take the floor again, but our experience with spinal anesthesia has not always been as favorable as the reports this evening would indicate.

We have oftentimes had a rapid drop in blood pressure, to such an extent that it verged upon the danger line. We have never used the preparation which Dr. Johnson has suggested, but in

order to counteract or prevent this rapid fall in blood pressure, we employ the method which Babcock of Philadelphia brought out a few years ago; that is, we have an assistant who watches the blood pressure, and gives intravenously as necessity indicates a solution of adrenalin chloride (20 minims for each 200 c.c. of normal salt solution). In this way we have been able to control the blood pressure, but I have never been convinced that there is not considerable danger attendant upon the use of spinal anesthesia.

Dr. J. K. Avent (closing): Dr. Johnston referred to the strychnin and the starch. Dr. Culley had me to get some of that a few days ago and it works beautifully, but there is a preparation put out by Metz and Company which contains the starch, novocain and alcohol, and I think if Dr. Gamble uses that he will find it a very good preparation, especially if he will use ephedrin sulphate. This is a big subject, and I believe the time is coming when every one of us will use it more than we are using it today.

TECHNIC FOR CLINICAL BLOOD PRESSURE MEASUREMENTS.

CLYDE BROOKS, M. D.,†

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For clinical measurement of blood pressure the auditory method is the method of first choice, at the present state of our knowledge. Using the auditory method, and the Riva-Rocci instrument, or some improvement of this apparatus, the correct criterion for securing the so-called systolic blood pressure measurement is the point where the arterial sounds first appear when the pressure in the cuff is gradually lowered, after first having been raised to a point high enough to suppress all arterial sounds.

Then continuing gradually to allow the pressure in the cuff to fall, until all arterial sounds cease, brings the pressure to the correct point for reading the so-called diastolic blood pressure.

Neither of these two readings represents the true diastolic nor the true systolic blood pressure. But they are readings of

two factors: first, the blood pressures; second, the additional pressure necessary to collapse the artery on which the readings are made. The principle on which the second factor is based is generally mentioned in the literature on blood pressure, though not generally well understood. But the greatness of the error due to the added elevation of pressure readings caused by this factor, is not at all generally appreciated.

To study these problems, a simple physical model was made of a piece of soft, thin-walled, rubber tubing, mounted within a large glass tube, so arranged that the inside of the piece of rubber tube was connected with a pressure bottle, and the space surrounding the soft rubber tube (and within the glass tube) was connected with another pressure bottle. The whole system was filled with water. One mercury manometer was connected with the space inside the soft rubber tube, and another manometer with the space outside the soft rubber tube (and within the glass tube). The pressures in these two openings were recorded on a kymograph.

In this physical model the piece of soft rubber tubing represents an artery on which the blood pressure readings are to be made. The pressure bottle connected with the inside of this arterial tube may be raised and lowered, thus producing the pulsating changes in pressure representing the systolic to diastolic blood pressure. The outer glass tube surrounding the arterial soft rubber tube, represents the cuff or arm band. By raising the pressure in this tube (which is outside the arterial rubber tube), pressure is brought to bear on the outside of the arterial tube. With this model it is found, that by setting the outside pressure at the right point, the arterial tube is collapsed just at the point where the inside arterial pressure is just at the diastolic level. Then by raising the arterial pressure to the systolic level, the arterial tube opens and fills with fluid.

*Read before the Louisiana State Medical Society, April 10-12, 1928.

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This adjustment gives maximal pulsations which are recorded by the manometer connected with the outside or cuff pressure. This result is contrary to the prediction of Marey (known as Marey's principle) which stated that maximal oscillations should be transmitted when the outside (cuff) pressure is just equal to the diastolic arterial pressure. Marey did not test his theory by a physical model.

Another principle demonstrated on this model is that the outside (cuff) pressure must be raised some three feet above the level of the inside (arterial) pressure in order to collapse the arterial tube which was used in this particular model. This is surprisingly high in view of the fact that the arterial tube is very soft and much larger in diameter than any human artery. (It has been found that the larger the diameter of the arterial tube, the less outside pressure is required to collapse it.) All this shows that this factor, or error, in measuring the blood pressure in patients with rigid blood vessels, must be very great.

Another principle shown by experiments on this model is that the oscillatory method for measuring blood pressure is not a good method. For the point where oscillations begin to be transmitted from the inner arterial pulsatory waves, is high above the systolic level. The height at which they may first be seen is determined by the delicacy of the recording apparatus. Naturally this leads to the conclusion that attempts at measuring blood pressure by the Uskoff, or any other of the various elaborate complicated oscillatory devices, are founded upon a misunderstanding of the physical principles involved in the use of these machines.

On the other hand, the auditory method depends upon the production of arterial sounds by pulsations of the blood pressure which impinge upon the cuff from above, and which finally open the artery from above downward. This sudden onset of opening and closing of the artery is accompanied by the sudden onset of sharp, high-pitched, snapping sounds, or thumps. This does not mean that the pulse wave is passing through under the cuff; but that it is merely opening the vessel under the cuff, and the opening, or rather the sudden closing, produces the sounds. These sounds may be imitated by tapping the tragus of the ear with the fore-finger. As the pressure in the cuff is further gradually lowered, these sounds gradually become lower in pitch and softer in tone, until they suddenly cease. The point where they cease is where the artery is not any longer completely collapsed, even at the lowest point of diastolic pressure. This is the point for reading off the diastolic pressure. At a point somewhat below the systolic pressure, there suddenly appears sharp, nozzle-like murmurish sounds immediately following the thump sounds, and in fact joined directly to the last part of the thump, making a "thumpish-sh." This sound may be imitated by tapping the tragus of the ear, and immediately dragging the finger at the instant it strikes the tragus. The nozzle, murmurish quality of the sounds is produced by the pulse wave breaking through under the cuff, and moving on below it. Because the artery is flattened, and only opens slightly it makes a narrow slit through which the blood must pass. This causes the nozzle-like sounds. They have no significance in blood pressure readings, and should therefore be ignored in such readings. Ordinarily there

are no other sounds nor phases of sounds to be heard. Furthermore, Korotkov never described the various phases of sounds, which are commonly described as "Korotkov's sounds."

The readings which are made: the highest point where arterial sounds are heard (the systolic blood pressure); and the lowest point where arterial sounds are heard (the diastolic blood pressure) are valuable clinical readings, although they do not correspond to the true systolic nor the true diastolic blood pressures. They are readings which are above the true levels of the systolic and diastolic pressures. The amount of error depends upon the resistance of the artery to compression. However, for the sake of uniformity, it is recommended that these measurements be made as suggested above, and that they be called systolic and diastolic pressures, with the understanding that they are not the true pressures; but are readings of blood pressure plus arterial resistance. As such, they are valuable clinical findings.

DISCUSSION.

Dr. R. H. Turner (New Orleans): I am sure we are all greatly indebted to Dr. Brooks for this presentation. Everyone has experienced some confusion about the sounds which indicate correctly the systolic and diastolic levels of blood pressure. The medical profession is to be congratulated on having a man who has the ingenuity and the patience to prove what relationship exists between such things as sounds heard with the stethoscope below the pressure cuff and the blood pressure. Although he can not hand us a perfect method for determining blood pressure, he can tell us the most satisfactory reading to make.

There are many people who wish to read the diastolic pressure while the sounds are still being distinctly heard on account of a change in their character. The greatest variety of new sounds may be heard in different cases, and several changes may take place. If one seizes upon the

wrong change, the diastolic pressure may be read too high. The diastolic pressure is, of course, of tremendous clinical importance, probably of greater clinical importance than the systolic pressure. Dr. Brooks has shown that the most accurate diastolic reading may be made at the time the snapping sounds disappear as pressure in the cuff is allowed to drop.

I think there is one condition left which may still demand the palpatory method of determining blood pressure, a rather rare condition most of us have seen only once or twice. This is the auscultatory gap. It may lead us into error if we use the auscultatory method alone. These people, often with hypertension, exhibit a most peculiar phenomena in that there is a period when the sounds should be loudest that they are inaudible. Sounds are heard below the systolic and above the diastolic levels, but with a silent gap between. If one does not happen to start with a very high pressure in the cuff, only the sounds below the gap may be heard, and the systolic pressure read as 150 when it really is 220. It is not a bad idea to check the systolic level by both the auscultatory and palpatory methods.

Dr. Brooks (Closing): I appreciate the remarks of the doctor who has discussed my paper. There is just one point that I would mention here, and that is: when one reads the blood pressure of a person with arterio-clerosis there is a high reading which may be blood pressure plus resistance of the vessel. It is important to know that. There is no way of telling by merely reading the blood pressure whether it is actually high pressure, or whether the pressure is normal, and the arterio-sclerosis runs the pressure reading up.

I am not ready to say, anything as far as I know, about these cases where there is a gap in the pressure sound. I do think that the palpatory method should be used in these cases; but as to why there is this gap, I am not, at present able to understand.

Another type of case is where the arterial sounds continue on down to a very low point. I am not ready to make a statement regarding these cases; but I suspect this sound curve in such cases, is due to another factor. In other words, the sound may be a different sound, not produced by the mechanisms that produce the regular sounds.

CASE REPORTS AND CLINICAL SUGGESTIONS

PROGRESSIVE NEURAL MUSCULAR ATROPHY (PERONEAL TYPE).

(Clinical Report of Two Cases in Brothers, Associated With Mental Symptoms).

W. J. CAVANAUGH, M. D., and HYMAN
TUCKER, M. D.,
MERIDIAN, MISS.

Many cases of the peroneal form of muscular atrophy have been previously reported, both singly, in more than one member of the same family, and in more than one generation. However, in a fairly extensive search of the literature, the authors found but little reference made to concomitant mental symptoms.

This peroneal type of atrophy was originally most accurately described by Charcot, Marie, and Tooth, and seems to stand midway between the central muscular atrophy and the muscular dystrophies. It usually begins early in life, runs in families, and attacks the muscles of the feet and peroneal group—later to be followed by involvement of those of the hands and upper limbs. Double club foot, the characteristic “step-page” gait, sensory and electrical changes are common. The course is a chronic one.

Practically nothing new has been added to our knowledge of this type of atrophy in the last 30 years, except possibly some light concerning its familial and pathological characteristics. Macklin and Bowman¹ studied this disease in a family of 101 persons, 21 of whom were affected in 5 generations. They concluded that:

1. The disease was not transmitted by persons who did not have the disease, manifest or latent.

2. It is possible for persons who have not yet shown the disease to procreate offspring to whom they transmit it, even being possible for the parent to transmit it to the child and for the parent to die before developing the disease.

3. Males and females were equally affected and probably transmitted it equally.

4. The longevity was not affected by the disease.

Pathologic-anatomic investigations² have shown that there is a degeneration in the posterior columns resembling that of tabes dorsalis, and atrophy of the anterior cornual cells, while the anterior nerve roots are said to be healthy; and a marked degeneration in the muscles fibres and intramuscular nerve fibres of the affected muscles.

The following rather typical cases of two brothers were studied during their hospitalization for mental trouble at the East Mississippi State Hospital. To obtain an anamnesis it was necessary to drive 75 miles into the country. Here the father of the two boys was interviewed. We found him uneducated, but of average intelligence. He himself was an orphan and knew nothing of his parentage. He gave the history of his wife's ancestors as negative, though it was noticed that his wife, the mother of the cases here reported was grossly defective, probably a high grade imbecile. He was unable to give a definite history about his own children, stating that being accustomed to them he had paid little attention to their early development. Besides the two boys J. D. and J. E., there were eight children. Three boys—ages 25, 21, and 17 years—are living. The two older boys were not seen but were said to be normal mentally and in good health. The younger appeared to be defective mentally and the father stated he could never learn at school and could not do anything but the simplest farm work. The oldest boy died suddenly at the age of 27 years—was normal mentally and there was no definite physical ailment noticed prior to his death. Three girls living. One—age 37 years—the oldest child, had the appearance of a low grade imbecile. She could do only the simplest house work, and it was noticed that she could not dress herself properly. Her clothing were ill arranged and the right shoe was on the left foot. She was at times irritable, but as a rule was easily managed. Another, age 19 years, was considered normal in intelligence by her father, though appeared dull. She was anemic and had complained of sick headaches and swelling of the feet for the past month or more. The youngest living child, a girl age 12 years, was in good physical health and appeared bright mentally. One girl died in infancy—cause unknown.

Personal History. J. D.

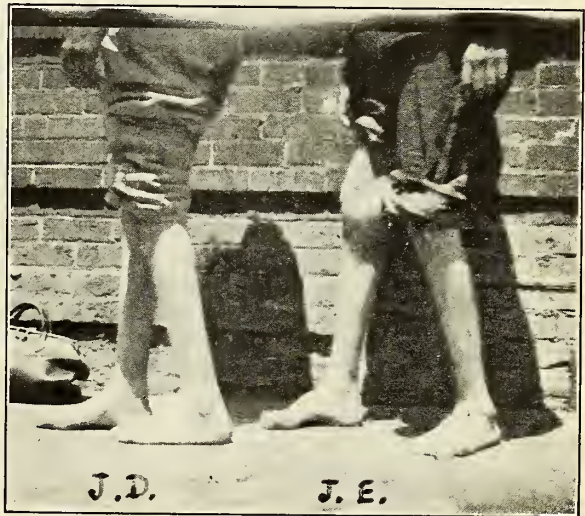
Age 30 years. Birth and childhood normal. Walked at the age of one year and talked at the usual age. Was bright and attained the 7th grade in school. No history of acute illnesses. It was noticed in early childhood that he developed a peculiar gait—"high stepping" as informant called it. This gradually grew more pronounced, though did not interfere with his work. Was considered normal mentally until 1919. Became irritable and attempted suicide. Was committed to East Mississippi State Hospital June 24, 1920. Was discharged as improved August 14, 1920. At home he was extremely irritable and unruly; would mumble to himself; get up at all times of the night and constantly abused his neighbors verbally, though made no attempts to injure anyone. Was recommitted to the hospital March 26, 1921, where he has been continuously since.

Personal History. J. E.

Age 25 years. His father thought that his feet were out of shape at the time of birth (not certain of this however). Otherwise birth was normal. Walked at the age of two years. Is unable to give age at the time of teething or talking. Had measles and whooping cough at about the age of 9 or 10 years. His general physical health was delicate. Was also dull mentally from early childhood. Could not learn in school, reaching the third grade at the age of 15 or 16 years. Was never able to do any kind of farm work that required any degree of skill. Was never as dependable and was more unruly than J. D. At the age of 22 years suffered from an attack of typhoid fever and was delirious for several days. Escaped from his home in his night clothes and remained out in a rain all night. Following this was very unruly and obstinate. Would lie in bed and threaten his neighbors. Would get up in the middle of the night to feed the farm stock and throw feed all over the barn yard. His manner became so threatening that he was committed to the East Mississippi State Hospital February 27, 1927. It was noticed that he walked with more and more difficulty during the year prior to his admission.



1. Anterior view of lower extremities



2. Lateral view

GENERAL PHYSICAL EXAMINATION.

Both are fairly well nourished; J. E. 24 years old; height 5 feet 8 inches; weight 140 pounds. J. D. 30 years old; height 5 feet 8½ inches; weight

146 pounds. They stand with knees slightly flexed—feet wide apart. The condition seems much more advanced in the younger one.

J. E.: Definite atrophy of supra and infra-spinatus muscles on both sides; also decided atrophy of interossei muscles of both hands with slight tendency to claw shape. Both feet assume varus position—are characteristically claw shaped with short high arch—more prominent on right side. All toes are flexed. He bears weight on outer plantar surface. Atrophy is most marked in both legs and feet.

J. D.: No appreciable atrophy of supra or infra-spinatus on either side. Shows slight atrophy of interossei of both hands. No claw tendency. Feet assume slight varus position. Claw shape is present, but not pronounced—more marked on left foot. Stands like J. E.—feet not so far apart. Atrophy of leg muscles very distinct, but those of feet only moderate.

Tonsils: Cryptic and infected.

Mouth, Neck, Ears and Nose: Negative.

Lungs and Heart: Negative. B. P. 110/70. Pulse 70.

Genitals and Abdomen: Negative. No evidence of endocrine disturbance.

Eyes: Vision impaired. Extrinsic muscles O. K. Fundus shows double optic neuritis, more pronounced on right.

Visual Fields: No co-operation. Pupils equal, regular, and react to light and accommodation. Consensual and ciliospinal reflex normal.

Cranial Nerves—Smell, Hearing and Taste: Normal.

Tongue: O. K. Few tremors.

Gait: Steppage—waddling.

Subjective: Complains of hot sensations in feet and legs—only when sitting down.

Superficial: All present except—

(1) Abdominal seems more active on left side.

(2) Plantar response is absent on both sides except concomitant contraction of tensor fasciae femoris.

Deep Reflexes: All present except knee and ankle jerks, which are absent.

Organic, Rhomberg and Co-ordination: Normal. No speech defect.

Not able to co-operate fully.

Touch: Absent on plantar surfaces of both feet. Markedly diminished on both lateral sides of feet.

Pain: Present but impaired over both legs and feet.

Temp: Present, but dulled.

Muscle Sense: Good.

Deep Pressure Sense: Present.

Stereognosis: Normal.

Head: 21¾ inches in circumference.

Chest: 34½ inches.

Right Arm: 10½ inches.

Left Arm: 10 inches.

Right Forearm: 9¾ inches.

Left Forearm: 9¼ inches.

Right Thigh: 17¾ inches greatest circumference, 4 inches above patella 13½ inches.

Tonsils: Cryptic and infected.

Mouth: Third molars on each lower side absent. Also upper right third molar and second premolar, first upper left premolar, and first upper left molar. All molars except upper right side have been filled.

Neck, Ears and Nose: Negative.

Lungs and Heart: Negative. B. P. 110/70. Pulse 80.

Genitals and Abdomen: Negative. No evidence of endocrine disturbance.

NEUROLOGICAL.

Eyes: Vision good. Extrinsic muscles O. K. Fundus examination negative.

Visual Fields: No co-operation. Pupils equal, regular, and react to light and accommodation. Consensual and cilio-spinal reflex normal.

Cranial Nerves—Smell, Hearing and Taste: Normal.

Tongue: O. K. Few tremors.

Gait: Steppage—waddling.

Subjective: Both lower extremities feel numb and warm.

REFLEXES.

Superficial: All present.

(1) Epigastric, abdominal, and lower abdominal all much increased on left side.

(2) Tensor fasciae responds, but no flexion of toes. Oppenheim and Gordon—give no response in either case.

Deep Reflexes: All present except ankle jerk. Knee jerks equally present and normal.

Organic, Rhomberg and Co-ordination: Normal. No speech defect.

SENSATIONS.

Co-operates better. Higher I. Q.

Touch: Practically the same as brother.

Pain: Impaired, but present.

Temp: Responds more promptly. Normal on both legs. Reaction time is increased on feet. No sensations for cold on plantar surfaces of both feet.

Muscle Sense: Good.

Deep Pressure Sense: Present.

Stereognosis: Normal.

SPECIAL MEASUREMENTS.

Head: 21¾ inches in circumference.

Chest: 36 inches.

Right Arm: 10½ inches.

Left Arm: 10½ inches.

Right Forearm: 9½ inches.

Left Forearm: 9¾ inches.

Right Thigh: 18¾ inch greatest circumference, 4 inches above patella 14 inches.

Left Thigh: 17½ greatest circumference, 4 inches above patella 13 inches.

Right Calf: 9¾ inches at greatest circumference.

Left Calf: 9½ inches at greatest circumference.

Right leg above ankle: 6¾ inches.

Left leg above ankle: 6½ inches.

Left Thigh: 18½ inches greatest circumference, 4 inches above patella 14 inches.

Right Calf: 10 inches at greatest circumference.

Left Calf: 10¼ inch at greatest circumference.

Right leg above ankle: 7½ inches.

Left leg above ankle: 7½ inches.

LABORATORY DATA.

Blood Wassermann total and differential blood counts and blood sugar negative.

Urine and Spinal Fluid: Normal.

Mental Status: Passive and agreeable. No spontaneity. Inattentive when questioned and answers are rambling. Takes ordinary care of person, but shows little interest in surroundings. Orientation approximate for time and place; good as to person. In fair contact. Memory good for recent, but poor for remote occurrences. Mood changeable. Inadequate emotional reaction.

Intellectual: Unable to give a satisfactory account of the difficulties leading up to his commitment. No hallucinations or delusions. Complain of peculiar sensations in legs when sitting down. General mental grasp is practically nil. Is unable to do the simplest calculations. Has practically no school or general information. A psychometric examination shows a total mental age of 6½ years with an I. Q. of 40. No insight. Judgment and reasoning in keeping with mental age.

Diagnosis: Mental deficiency, probably with periods of excitement.

SUMMARY AND DISCUSSION.

We have presented two rather typical cases of peroneal atrophy in brothers, where hospitalization was the result of the development of mental symptoms. We feel that these latter were probably purely coincidental, since they fell into definite psychiatric groupings. It would be interesting to be able to get the brains and spinal cords of these cases, but this is unlikely. A striking resemblance was noted in the heights and weights of these boys, although a difference in age of six years. Both their head circumference and blood

Blood Wassermann total and differential blood counts and blood sugar negative.

Urine and Spinal Fluid: Normal.

Mental Status: Passive; seclusive; no spontaneity; inattentive. Answers questions relevantly. When left alone will mumble and laugh to himself. Shows little interest in person and surroundings. Orientation and memory fairly good. Mood apathetic and retiring. Emotional reactions inadequate. Emotional tone lowered.

Intellectual: Is shut in and will not give satisfactory account of his difficulties. Has a good many paranoid ideas unsystematized. Will not admit hallucinations, though spends much of his time talking when alone. General mental grasp considerably below 7th grade; however, he does small problems correctly. Apparently has retained only a small part of school knowledge. This may be due to lack of interest and co-operation. Practically no general information. Psychometric examination shows mental age of 9 years, 8 months, with an I. Q. of about 60. His answers during the psychometric examination were scattered. He failed on tests in the 6th, 7th, 8th, and 9th year, but did much better in the 10th. Did not completely fail until after the 14th year. The mental age of 9 years, 8 months, is out of keeping with the attainment of the 7th grade in school and indicates more a deterioration than a native deficiency.

Diagnosis: Dementia precox (Hebephrenic type).

pressures were identical. From the clinical standpoint, the younger boy showed more advanced symptoms and this was corroborated by the neurological findings.

We note that the heredity is badly tainted in the family, although the older of the two boys, J. D., was considered normal mentally, having reached the 7th grade (an average for this part of the country), while J. E. was always below par mentally.

1. Macklin, Madge Thurlaw and Bowman, J. Thornley. The inheritance of peroneal atrophy; incidence of the condition in five generations: J. A. M. A., 86; 617, 1926.

2. Stewart, Purves: The diagnosis of nervous disease, Sixth Ed., p. 306.

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THE PHYSICIAN AND JURY DUTY

From time immemorial the physician has labored under the belief that he is positively exempt from jury duty. Recently in several states there has been made an effort by jurists and sheriffs to oblige doctors to serve on juries. This attempt in the face of a precedent long sanctioned by time, is possibly in many states as no specific legislation has been enacted freeing the physician from a civic duty which could be performed only at the expense of the sick. In Louisiana, however, such is not

the case. President J. Birney Guthrie of the Orleans Parish Medical Society has consulted the attorneys of the Society, Messrs. Dart and Dart, who state specifically, "that Act 154 of 1926 exempts all physicians and surgeons who are actively engaged in the practice of their professions, from jury service."

This legal opinion on the status of the physician in reference to jury duty, obtained primarily for the members of a local branch of the State Society should be appreciated by all the members of the organization. Such positive information on this point may prevent considerable trouble and disagreeable argumentation in the future, if, perchance, a Louisiana physician should be called to act as a jurymen.

BRUCELLA MELITENSIS VAR.
ABORTUS INFECTION
IN MAN.

In the past few years certain of the hitherto unrecognized infections such as typhus fever have been shown to be more or less prevalent in certain communities. New infections have been recognized, a notable example of which is the discovery of tularemia, largely through the efforts of Francis. Malta fever represents a disease which was not believed to be prevalent in this country, but which now is known to exist in certain section of it. Closely allied to this interesting disease from the point of view of the bacteriologist and clinician is infection in man by the organism responsible for infectious abortion in cattle. This disease is being recognized throughout the country and so far some thirty-six cases have been reported. That this represents the true incidence of the disease is very doubtful, as agglutination reactions in a large series of individuals whose sera were being examined

by the technic of Wassermann, made in such states as Illinois, District of Columbia, Iowa and Tennessee, were positive in approximately one per cent. Kern* in a very clear and well presented review of the subject, calls attention to many points which space will not allow to be discussed at present. However, it would seem well to accentuate succinctly the clinical picture. These patients have at the onset vague irregular symptoms suggesting a general infection. The onset is usually insidious and the further clinical course is not characteristic, although there may be waves of pyrexia with succeeding afebrile periods, alternating at times the septic type of temperature. This irregular fever is accompanied by severe sweats and vague nervous symptoms. Examination of the patient discloses some enlargement of the spleen in about forty per cent of cases. The blood pressure is usually low and the leucocyte count is usually under ten thousand with a relative increase in lymphocytes.

With this extremely indefinite clinical picture, needless to state, the disease is not suspected in a majority of cases or only until it has progressed over a long period of time. The agglutination reaction gives positive information, but has not been employed until the late stages in the course of the disease. It would behoove the physician, given a case of fever of undetermined origin lasting more than twelve days, to make use of this particular specific reaction. It is quite possible that it may clear up the diagnosis of a case of *Brucella abortus* infection unsuspected and unappreciated.

*Kern, Richard A.: Clinical Aspects of *Brucella Melitensis* var. *Abortus* Infection in Man: A Report of the First Cases Recognized in Pennsylvania, *Am. J. Med. Sc.* 176:405-430 (Sept.) 1928.

A NEW PARASITOLOGIST IN LOUISIANA.

All observers are enthusiastic and emphatic in the opinion as to the importance of New Orleans as a great medical center, and that the possibilities for its development along medical lines are unlimited. Because of its location and its proximity to the Latin-American countries, the field of tropical medicine is attracting more and more attention here. The establishment of the Department of Tropical Medicine of Tulane University, under the world renowned Dr. Castellani was rightly heralded as a great step forward both in the life of the University and the progress of New Orleans.

In keeping with the advancement of this newest department of the University comes the recent announcement that Tulane is to have an authority upon parasitology, namely, Dr. Ernest Carroll Faust.

Dr. Faust has had unusual experience in his specialty. He has worked and studied in French Indo-China, the Phillippines, the Malay States, Japan, Korea, Formosa, India, Egypt and Europe, as well as in the Southern part of the United States.

The newly appointed Professor of Parasitology was born in Carthage, Missouri in 1890. He has the degree of Bachelor of Science, Master of Arts, and Doctor of Philosophy. He is the author of many scientific publications. He is a councilor of the American Society of Parasitologists and a member of the permanent Commission on Parasitology of the International Congress of Zoology.

The Journal wishes to take this opportunity to welcome Dr. Faust, and to congratulate Tulane upon securing him.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

ANNOUNCEMENT.

TO THE MEMBERSHIP:

Arrangements have been made with the Roosevelt Hotel for the meeting of the Louisiana State Medical Society to take place next April.

The Roosevelt Hotel will be our headquarters where scientific sessions and the House of Delegates will meet.

Provisions have also been made for registration, scientific and commercial Exhibits.

PAUL J. GELPI, M. D.,
Chairman, Arrangements Committee.

THE PAN-PACIFIC WOMEN'S CONFERENCE.

The first Pan-Pacific Women's Conference was held in Honolulu August 9th to 19th. The conference was called by the Pan-Pacific Union for the purpose of bringing together women leaders in the Pacific countries to consider the problems of health, education, industry, social service, and government as they affect women and children in the countries of this area where live more than half the population of the entire world.

The meetings were held in Bishop Hall, Punahou School, and were presided over by Jane Addams, the International Chairman. Governor Wallace R. Farrington greeted the delegates in the name of the Territory and as President of the Pan-Pacific Union. Alexander Hume Ford, Director of the Pan-Pacific Union and one of the most indefatigable workers toward the success of the Conference, presented the "gavel."

Twelve countries were represented and of the 135 voting delegates 16 were physicians from China, Japan, Hawaii, Australia, New Zealand, Philippine Islands, Dutch East Indies, and the United States.

Besides the general meetings there were special meetings and round table sessions. Formal addresses in several fields of general interest to the entire conference were prepared in advance and presented in the general meetings, to which the public was invited.

Some of the topics were "The Status of Preventive Medicine in China", "Special Trends in Family Relationships in the United States", "Industrial Hygiene in the Philippine", "The Prevention of Infant Mortality in Japan", "Child Hygiene in New Zealand", "The Social Significance of the

Employed Woman", "The Legal and Political Relationship of Women in Japan", "The Development of Child Hygiene in California", and others.

Of special interest to the health section were the visits to Queen's Hospital, the Palama Settlement, and also to the Industrial School for Girls and the Salvation Army School for Boys.

The medical fraternity holds its regular meeting in the form of clinics at Queen's Hospital every Thursday morning. I was much impressed with the splendid presentation of cases and papers, the enthusiasm of the members and especially the promptness of attendance. It carries away the feeling that the members consider this Thursday morning an opportunity and a privilege not to be neglected or underestimated. Queen's is a 250-bed hospital situated in a tropical garden with long avenues of royal palms more than a century old, and great numbers of other magnificent trees of koa, banyan, monkey-pod, the flowering pink and yellow cassia, and poinciana. The building has wide "lanais" (galleries) and a roof garden and sun porch combined with beautiful blooming plants and vines all about certainly a comfort and diversion for the afflicted.

In co-operation with the dental staff at Palama Settlement, the city's big community center, Dr. Martha Jones, formerly of Yale, is carrying on research in dental caries with special reference to the effects of diet which she has studied in lower animals over a period of several years. The work is being studied in the pre-natal clinic as well as in children of the pre-school and school age.

At a dinner given for physicians, Dr. Nils Larsens, medical Director of Queen's Hospital, a Chairman of the Pan-Pacific Surgeons Congress announced that this congress would meet in Honolulu August 15 to 22, 1929. The tentative program covers the different branches of surgery and from the list of names already received from many different countries the success of the conference is assured.

For the physician who is planning a few weeks vacation next summer, I can think of no place where he could combine a greater amount of pleasure and interest within such a short time. The climate is delightful, the scenery is beautiful and restful, and the hospitality of the people of Hawaii is unsurpassed, and there are no snakes on any of the islands.

enjoyed the hospitality of Dr. and Mrs. How-Clarke in their beautiful home and attended them the 150th anniversary of the settlement on the islands, held in Kapiolani Park.

Dr. Clarke, Tulane '05, is engaged in nose and throat work. He extends the Hawaiian-Aloha to the Hawaiianians.

ELIZABETH BASS,

Delegate from the Medical Women's National Association.

SEVENTH DISTRICT MEETING

The Seventh District Medical Society held its 15th Meeting in the LaCombe Hotel, Opelousas, Louisiana, Thursday, September 13, 1928.

With an attendance of 38 members and a number of notable guests, the meeting was called to order by President J. W. Faulk, of Crowley. The minutes of the previous meeting were read and approved. A letter from Dr. Wright, in which he announced a donation of \$10.00 towards the paying of expenses, was read.

A committee composed of Drs. B. A. Littell, Chairman; T. W. Watkins and M. L. Hoffpaur, was appointed to draw up resolutions on the recent death of our beloved and distinguished brother member, Dr. E. M. Ellis of Crowley.

The question of the flagrant violation of the law by Miller of Jennings in his chiropractic practice, was discussed. Dr. Leon J. Menville, president of the State Medical Society, added that a campaign was being waged to prosecute such violators, but the obstacles confronted, particularly in court, were greatly deterring the dispensing of justice.

Upon proposing Crowley as the next meeting place, the motion was carried.

Dr. M. O. Miller of New Orleans commented on the laudable work of the past superintendent of Charity Hospital, Dr. Wm. W. Leake. Following Dr. Miller's expression of the splendid work of Dr. Vidrine, the present superintendent of the hospital, a resolution was adopted commending the manner in which he was conducting the work.

Upon motion the following guests were elected honorary members of the Society: Drs. Leon Menville, Lucian Landry, E. L. King and M. O. Miller.

Dr. Faulk reported that Dr. King would not be present because of an exigency in his practice.

The scientific program consisted of the following very enlightening papers:

"Septic Osteomyelitis of Rib, with Case Report,"—Dr. M. O. Miller.

"The Management of Pre-eclamptic Toxemia and Eclampsia,"—Dr. E. L. King.

In the characteristic humor of Dr. Lucien Landry, under the title of "De Specialization of Medicine", he gave a resume of the practical phase of specialization, in the farcical French dialect.

S. R. HENRY, M. D.,
Secretary-Treasurer.

AMERICAN PUBLIC HEALTH ASSOCIATION MEETING.

Eleven sections will comprise the 57th annual convention of the American Public Health Association, which will be held jointly with the meetings of the American Child Health Association and the American Social Hygiene Association, October 15-19, at the Stevens Hotel. Sections will be divided into the following main groups: Epidemiology, Public Health Education, Cancer, Vital Statistics, Industrial Hygiene, Public Health Engineering, Child Hygiene, Laboratory, Health Officers, Food Drug and Nutrition, and Public Health Nursing.

Convention discussions will be followed by laboratory trips, or inspection tours. Eighteen scheduled trips have been planned, and sixty-three optional ones are on the program, so that these tours will offer a wide range of interest and be of value to workers in every phase of health.

Over three thousand delegates and visitors, including physicians from England, Germany, Sweden, Mexico, Canada and the Canal Zone will be in Chicago to attend the meeting, which will open Monday evening, October 15, with a general session at which Dr. Herman N. Bundesen, president of the American Public Health Association, will deliver the opening address.

MEETING OF THE AMERICAN COLLEGE OF SURGEONS.

The American College of Surgeons will hold the eighteenth Clinical Congress in Boston, October 8-12. Headquarters will be at the Statler Hotel and meetings will be held in the ballroom of the Copley-Plaza Hotel and Symphony Hall. The Hospital Standardization Conference will be held in morning and afternoon sessions in the ballroom of the Copley-Plaza Hotel Monday, Tuesday, Wednesday and Thursday. An innovation this year will be the commencement of the clinics in the Boston hospitals on Monday afternoon, continuing through the mornings and afternoons of the following four days. Monday evening's pro-

gram will include an address of welcome by the local Chairman, the address of the retiring President, Dr. George David Stewart, New York, the inaugural address of the new president, Dr. Franklin H. Martin, Chicago, and the John B. Murphy oration on surgery by Professor Vittorio Putti of Bologna, Italy. Tuesday, Wednesday and Thursday evenings' sessions will be held in the ballroom of the Copley-Plaza Hotel. At the Wednesday evening meeting the visiting surgeons will be the guests of the Boston Surgical Society at a special meeting when the Bigelow medal is to be awarded. On Friday evening the Annual Convocation of the College will be held in Symphony Hall when the 1928 class of candidates for Fellowship in the College will be received. The fellowship address on this evening will be delivered by Dr. William J. Mayo.

A LETTER OF APPRECIATION

Thursday, Aug 30th, 1928.

To the Journal Committee and the Editorial Staff,
New Orleans Medical and Surgical Journal,
New Orleans, La.

My Dear Colleagues:

Arriving in the city yesterday after an absence of two months, I read for the first time the gracious editorial mention of my little talk at the Semi-centennial meeting of the Parish Medical Society which appears on page 68 of the July number of the Journal.

I would be less than human not to feel deeply gratified to think that I have earned that complimentary reference on the Editorial page, and I wish to thank the Staff collectively and the member individually who wrote those gracious words.

Ever since that memorable night I have been wondering what I could have said to please the audience so much, and I have about arrived at the conclusion that the incident is simply another remarkable instance of telepathy. The audience seemed to be with me in spirit, and it was no exaggeration on my part to say that looking into their earnest, friendly faces, my heart went out to them in fraternal affection.

I saw there the faces of my own personal associates, men with whom I have worked for years, along with the faces of the younger generation of doctors, many of whom I had known as students, or hospital internes, and realizing that I have, perhaps, but a few years yet to live, I appealed to them in the name of fraternal union, quoting the Psalmist's immortal words to inspire them with a realization of what those words, writ-

ten centuries ago, mean to the medical profession of today, calling us to work together in harmony for our own sakes and for the success of the sacred cause to which we are pledged.

Again thanking you, I am

Yours most cordially,

G. FARRAR PATTON, M. D.

FOOTBALL NOTICE.

A courtesy is being extended by the Tulane Athletic Association to doctors attending the football games.

Telephone calls will be transmitted to them if they notify the ticket taker upon entering the stadium.

These calls may be answered at the press box

OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY OF NEW ORLEANS.

The New Orleans Ophthalmological and Otolaryngological Society held their scientific meeting on Thursday, June 21, 1928. Dr. C. U. Johnson presided as chairman of the meeting.

Dr. Brown presented a case of trachoma which progressively became worse. The patient states he has suffered from this disease for 25 years, that he was treated in the outdoor clinic of the Eye, Ear, Nose & Throat Hospital during 1904-5, in the Touro Clinics during 1907-8, that he has been a private patient of many local ophthalmologists.

On September 24, 1924, the patient presented in both eyes, multiple ulcers of the cornea, marked pannus, the fornices were studied with trachoma follicles and the tarsus was thick and infiltrated bearing many scars; ptosis was obvious and there was some inflammation of the conjunctiva.

A smear and culture demonstrated the presence of pneumococci as a superimposed infection. The blepharospasm due to the intense photophobia and excessive lachrimation was responsible for the pitiable object the patient appeared when being led into the office for examination.

On September 14, 1924, a combined incision of the conjunctiva and tarsus, after the method of Kuhnt, as modified by Beard was performed. Six weeks later the eye was quiet, all symptoms had subsided when the fellow eye was operated upon with the same technic. Six weeks following this operation the patient was entirely free from pain. The patient is a high hyperope and wears a plus 6 S. on a plus 1.50 C at axis 1.80 in his right

e with a plus 4 S. in the left eye which brings vision up to 20/40 minus 2. A lower addition 2.50 S. affords J-2.

The patient has now resumed his duty as a baggage checker and is clinically cured of the trachoma. This has continued over a period of four years following the operation.

Kuhnt has performed his operation 5,000 times and found the results of cured cases to be 50 to 100 per cent, while expression offered only 10 per cent.

Von Gernet in 1924 while assuming the argument against Peters reported 709 more operations for trachoma since his earlier publications, 12 of which were combined incisions.

Beard suggests the use of the Walker Lid Everter instead of the others in general use.

Dr. Ochsner presented a case of cerebrospinal rhinorrhea which he had previously presented before this society at the meeting previous to the present. The case not only presented the cerebrospinal fluid drainage into the nose but also a bilateral choked disc greater in the right eye with about 3 diopters with no mental derangements. In February, 1928, an osteoplastic flap on the left side was done. Many adhesions of the dura were found in the anterior fossa. No cerebral pathology was found. Following the decompression the patient improved. The papillio-edema diminished and the vision improved; the hearing also improved. The pathological findings were as follows: Wassermann, negative; Roentgen-ray, slight cloudiness of the left ethmoidal region particularly in the anterior group. The weakness of the lower limb on the left side which was recognized prior to the craniectomy became worse after the operation and finally resulted in a partial paralysis of the left side. Dr. Granger presented the Roentgen-ray plates in which he pointed out the erosion of the greater wings of the sphenoid more evident on the right side which is apparently the sight of rupture of the dura, which resulted in the cerebrospinal rhinorrhea. He also pointed out the fact that there was no erosion of the anterior clinoid processes nor was there any thinning of any parts of the skull indicative of increased intra-cranial pressure. Dr. Ochsner in closing the discussion brought out the fact that the severe headaches on the left side, the failing vision of the left eye and the diminished hearing of the left ear, and the rhinorrhoea of that side with the early onset and spontaneous occurrence suggested a lesion on the left side, hence the left craniectomy. In view of the fact that the left craniectomy failed to show any pathology and the existence of an increasing left hemiplegia,

Dr. Ochsner recommended an exploratory craniectomy of the right anterior fossa.

Dr. Buffington presented a suspicious case of tumor of the cella turcica in a young man 17 years of age. The history was as follows: June 8, 1920, patient complained of headaches in occipital regions, dizziness especially on rising in the morning and when moving the head from side to side on the pillows at night. Nausea, vomiting and deafness of the left ear which progressed until it involved the right ear. His eyesight began to fail 6 months after the deafness. Vision 20/50 both eyes. Urine negative; Wassermann and spinal fluid negative, increased pressure. He gave a history of having had a bilateral spheno-ethmoidectomy several months prior to his visit to him. Examination of the eyes showed a bilateral choked disc of 3 diopters right eye and 4 diopters left eye. Fields showed a bitemporal hemianopsia. Examination of the Roentgen-ray plates showed evidences of an intra-cella tumor of the gland extending into the sphenoidal sinus although on examining the patient at the present time, one is able to see into the sphenoidal sinuses and evidence of a tumor is in vain. In the discussion the question of why the sphenoidectomy was done for no pathology was found, and why the diagnosis of an intracranial lesion was not made. One instantly sees why the diagnosis of a sphenoiditis was made prior to the diagnosis of an intracranial lesion because the symptomatology simulated that of sphenoiditis which was as follows: dizziness, nausea, vomiting, occipital headaches, and optic neuritis. The only symptom which was not indicative of sphenoiditis was the diminished hearing and on close examining the patient it was brought out that the patient not only had the four above mentioned symptoms but had post nasal dripping and occasionally a sore throat, which, with the above symptoms, were diagnostic of a sphenoiditis and undoubtedly the question of the sphenoidectomy was not a bad mistake. In closing his discussion of Dr. Ochsner's paper, Dr. Wagner answered the question as to why the diagnosis of an intracranial lesion had not been diagnosed by stating that because of the incipency of the onset with so few symptoms other than the diminished hearing undoubtedly due to choked labyrinth in the ears negative on inspection, that there was no substantiality for the diagnosis, whereas today the patient with his diminished sight due to the choked disc and contracted fields of vision and relative bitemporal hemianopsia, loss of hearing due to choked labyrinth, increased intracranial tumor most probably of the cella turcica, in view of the fact that there is increased intracranial pressure with choking of the disc which is rarely found in pituitary tumors, a cyst

of the pituitary pressing upward against the cavernous sinus interfering with the venous return from the optic nerve. If this case presented the symptoms and signs at the time the sphenoidectomy was done which he has at the present, it then shows the failure of a complete ear, nose and throat examination which I don't believe was true. A detailed history, examination of the throat, nose, nasopharynx and ears with a complete hearing and vestibular tests would have detected the choked labyrinth which in this case is of important differential diagnostic aid. Although the diagnosis of a choked labyrinth is not as easily made as a choked disc it is of more diagnostic value as far as intra-cranial lesions are concerned. The diagnosis of choked labyrinth is as follows: A patient whose hearing is gradually diminishing, either unilateral or bilateral, and usually bilateral, who on examination presents a normal external and middle ear on inspection and a patent eustachean tube on auscultation, with evidences of intracranial hypertension (increased cerebrospinal manometer reading, headache, projectile vomiting, Roentgen-ray findings) and a hearing test which shows an elevation of the lower tone limit, a lowering of the upper tone limit, and a diminished Schwabach test, with no evidences of otosclerosis confirmed by the absence of promontorial hyperemia, negative history of progressive deafness in the family and a negative Galle test. This patient not only showed evidences of choked labyrinth and choked disc but also an anosmia which went unrecognized. The Roentgen-ray examination as presented by Dr. Granger showed changes in the posterior clinoid processes suggestive of an erosion into the sphenoid and a tumor pressing backward from the cella turcica, also a double line forming the posterior wall of the sphenoid indicative of the tumor pressing into the sphenoidal sinus. In closing the discussion it

was suggested that the tumor was one of cyst formation rather than adenomatous in character. The erosion of the posterior clinoid processes, the increased intracranial pressure evidently due to the cyst pressing against the foramen of Monro, blocking the drainage of the cerebrospinal fluid of the ventricles, producing internal hydrocephalus resulting in the choked labyrinth, choked disc and other symptoms especially the anosmia which is due to either pressure against the rhinencephalon by the tumor, or choking of the olfactory nerves, thus a diagnosis of a cyst of the cella turcica rather than an adenomatous tumor. In closing the discussion Dr. Ochsner proposed that a craniectomy of the anterior fossa be done to explore the anterior fossa as far inward as the cella. There was one occurrence in this case, although unexplainable, the improvement in vision following the sphenoidectomy.

Dr. Dimitry presented a case of tabetic optic atrophy in which the disease destroyed one eye resulting in a complete atrophy, and produced an active optic neuritis in the other in which the administration of arsenic in the midst of the active inflammation produced a marked improvement of the inflamed eye which resulted in complete recovery of the neuritic eye. This case was presented to bring out the fact and to prove it, that arsenic and arsenical preparations such as sulpharsphenamin in active optic neuritis will bring about a cure rather than to aggravate the neuritis as some believe.

Dr. Dunn presented a retinoscope with an attachment to facilitate presbyopics in retinoscopy.

Dr. Granger showed several Roentgen-ray plates of a sphenoidal sinus which extended well down into the pterygoid processes of the sphenoid bone.

WILLIAM A. WAGNER, M. D.,
Secretary-Treasurer.

COMPARABLE RESULTS WITH THE WAS- SERMANN AND PRECIPITATION TESTS.—

On account of delay in receiving the cut for this manuscript of Dr. H. W. Butler, publication of which was scheduled for the present number of the Journal, it was found necessary to withhold the appearance of the article until the next issue.

DR. BETHEA HONORED.—Dr. Oscar W. Bethea, chief of the department of medicine at the Baptist Hospital, and a member of the faculty of the medical school of Tulane University has been elected to membership in the American Therapeutics Society. Dr. Bethea is the author of "Clinical Medicine", a book just off the press.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

SPECIAL NOTICE.

the Mississippi State Medical Association:
Gentlemen:

During the meeting of the Association in Meridian we caused to be distributed at the Registrar's desk pamphlets calling attention to the meeting of the Interstate Post Graduate Association in Atlanta, October 12-18, 1928. The completed program will be mailed out about September first, and we feel justified in saying that there has never before been given the physicians of this country such a splendid intensified post-graduate course as is here offered.

There is no charge for this service other than a five dollar registration fee. Over a hundred of the most famous medical teachers in the world will be on the program, which has been prepared by Dr. George Crile. This is the first time this meeting has been held in the South and it is an opportunity of a life time.

We feel sure that many members of the Mississippi Association will avail themselves of this rare treat.

(Signed),

W. H. FRIZELL, President
T. M. DYE, Secretary.

The De Soto County Medical Society held a public meeting in Hernando on September 14th. The following program was rendered:

The Necessity of a Yearly Physical Examination and Health Inventory—Dr. L. L. Minor.

The Southern Doctor—Hon. E. N. Wilroy.

An Address—Dr. Wm. B. Harrison, Supt. of the Shelby County Board of Health

The doctors were entertained by the P. T. A. whose officers are. President, Mrs. J. M. Wright; chairman, Mrs. Joe Dean.

The staff meeting of the Vicksburg Sanitarium was held on September 10th with the following program:

1. Carcinoma of the Gall Bladder with Clinical, Operative, and Autopsy Findings—Dr. A. Street.

2. Unusual Hemorrhage following Adenoidec-
tomy—Dr. G. M. Street.

3. Aneurism of the Digital Artery of Hand, with Operation—Dr. J. A. K. Birchett, Jr.

4. Calculus of the Bladder—Dr. J. K. A. Birchett, Jr.

5. Acute Anterior Poliomyelitis with Paralysis—Dr. L. J. Clark.

6. Extensive Cellulitis of the Arm; Streptococcus Infection—Dr. H. H. Johnston.

7. Some Notes on the Interpretation of Blood Findings—Dr. L. S. Lippincott.

The East Mississippi Medical Society met in Meridian on August 23, 1928.

The regular meeting of the Tri-County Medical Society was held in Brookhaven on September 11. The program was as follows:

1. Medical Sociology Excerpts—Dr. O. N. Arrington.

2. Acute Conditions within the Abdomen—Dr. D. T. Brock.

3. Roentgen-ray Study of the Chest—Dr. M. D. Ratcliff.

4. Calculi of the Gentro-Urinary Tract—Dr. O. B. Harvey.

Dr. J. H. Johnson of Brookhaven is slowly recovering from a long siege of illness. Dr. Johnson has been unable to attend his professional duties the past few months. If he continues to improve during the next few weeks as he has the past month, he will be able soon to resume the greater part of his work.

The regular monthly meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held in Vicksburg on September 11th. The program was as follows:

1. Am I My Brother's Keeper?—Dr. L. L. Martin, Anguilla.

2. A Paper—Dr. J. B. Benton, Valley Park.

3. Vincent's Infection of the Gums—Dr. G. W. F. Rembert, Jackson.

4. Some Notes on the Interpretation of Leucocyte Counts—Dr. L. S. Lippincott, Vicksburg.

The following are some abstracts from the August meeting:

Some Unique Country Surgery—Dr. W. H. Scudder.

George Washington, negro, 70 years of age, came home Saturday night drunk and abusive. His woman fired a load of buckshot into his arm at short range. His clothing was burned, the arm burned, and the contents of the gun with dirty clothing and paper wadding, passed into or through the upper arm, shattering the humerus. Patient seen next day. Several bated shot, much paper wadding, powder-burned rags and pieces of bone were removed; wound cleansed with carbolized water and dressed. Daily irrigations with iodine water were ordered. Other pieces of bone and debris were removed from day to day, until wound was free from pus. The two ends of the bone were then brought together and held in place with plaster of Paris bandages. Perfect union resulted with a three-inch shortening. Patient was soon plowing as usual. This occurred 30 years ago when we had just begun to talk of antiseptics.

A white female patient, about 45 years of age, had among other complaints, severe nasal catarrh, with the nasal cavity completely filled with polypi. From 150 pounds she had dropped to 110 in two or three years, and was confined to her bed most of the time. She became a morphin addict, using it hypodermatically with atropin. In less than a year she had gained 40 pounds, the catarrh was completely cured and the polypi gone; she was doing all her housework. After three years, she was then treated and cured of the opium habit. While this is not a surgical case, I felt that I could not miss the chance to tell you of my new remedy for catarrh.

Some Unoriginal Remarks on Mastoiditis—Dr. E. F. Howard.

Not all cases of mastoiditis are typical. Many show considerable resistance to infection and two-thirds of all get well without operation. With middle ear infection, there is always also some mastoid involvement, of the antrum at least. The laboratory should be consulted early to determine type of infection. A low grade infection requires less vigorous treatment than an infection with the streptococcus. Pneumococcus infection is one of the worst, with early widespread destruction of bone. Diphtheria occasionally causes otitis media. No case is thoroughly worked up without a Roentgen-ray examination to determine the anatomy and the extent of cell destruction. Mastoid symptoms may be duplicated by many other condi-

tions. A number of interesting cases were presented.

Carcinoma of the Stomach—Dr. A. Street.

More than 30 per cent of all carcinoma occur in the stomach. Carcinoma of the stomach is one of the most curable types, even coming for treatment as late as the average case does today. Five year cures are obtained in about 35 per cent of the operable cases. But more than 50 per cent of the cases are plainly inoperative at the time of initial examination. If we are to improve the situation we must have a method of procedure which will give assurance that we are not treating palliatively a patient with early stomach growth. A persistent or recurrent digestive disorder of unknown cause, or any unaccounted for anemia or loss of weight in a person over 35 years, should be considered a possible case of cancer until careful examination, including Roentgen-ray, shows stomach free of evidence of growth. A number of Roentgen-ray studies of operable and inoperable carcinoma of the stomach were presented.

The regular quarterly meeting of the Northeast Mississippi Thirteen Counties Medical Society was held in Tupelo on September 18th. The program was as follows:

1. Maxillary Sinusitis—Dr. D. H. Hamrick, Corinth.
2. Undulant Fever—Dr. J. F. Eckford, Starkville.
3. The Mechanism of Reduction of Simple Fractures—Dr. G. A. Caldwell, Shreveport.
4. Urinary Obstructions—Dr. L. B. Morris, Macon.
5. Abdominal Emergencies—Dr. W. H. Anderson, Booneville.
6. Nausea and Vomiting of Pregnancy—Dr. W. H. Eason, Tupelo.

At the September meeting of the Board of Supervisors of Adams County the establishment of a full time health unit was approved and the Board of Mayor and Alderman of Natchez have indicated their willingness to co-operate. In all likelihood Adams County will have a full time health unit in operation in the near future.

Lincoln, Copiah, Lafayette, Neshoba and Monroe Counties have made appropriation for the first time for this work and Lowndes county is showing very much interest. The following counties have the full time health units in operation

already: Bolivar, Clarke, Coahoma, Forrest, Hancock, Hinds, Holmes, Humphreys, Issaquena, Jackson, Jones, Lamar, Lauderdale, Lee, Leflore, Pearl River, Perry, Sharkey, Sunflower, Tishomingo, Union, Warren, Washington, and Yazoo.

RECENT VISITORS FROM OTHER STATES AND FOREIGN COUNTRIES.

The effective work of our State Board of Health has gained sufficient recognition outside of our borders to attract visitors to inspect its activities. Here is a list of visitors during the spring and summer:

Dr. L. W. Hackett, Rockefeller Foundation staff member, Rome, Italy; particularly interested in malaria control methods.

Dr. J. F. Kendrick, Rochester Foundation staff member, Madras, India; general observation of the program as a whole.

Mr. A. H. Balcarcel, sanitary engineer from Guatemala; malaria surveys and control measures.

Surgeon L. L. Lumsden, U. S. Public Health Service, Washington, D. C.

Dr. C. T. Teng, Canton, China, chief of the bureau of communicable diseases in Canton. He spent last year at Johns Hopkins School of Hygiene and Public Health and while at Indianola actually participated in all phases of the work.

Dr. I. J. Cruchley, who spent the past year at Johns Hopkins, will probably be director of a parochial health department upon his return to Jamaica. He was chiefly interested in the organization of the department, but spent several days on malaria work.

Dr. J. Nitzulescu, associate professor of medicine at the University of Jassay, Roumania, is making a study of pellagra in Sunflower County.

Dr. G. F. Telfer of California State Board of Health.

Engineer Samuel Saenz, Costa Rica, devoted his entire visit to the study of the malaria problem.

Engineer Mihai Grigoriu, assistant engineer for the ministry of Health, Roumania, spent most of his time with Mr. Parker acquiring experience in the sanitary engineering problems related to malaria.

H. N. Worth, sanitary engineer of Ceylon, and Mr. L. Continenino, sanitary engineer of Brazil, both interested in and acquiring experience in sanitary engineering problems related to malaria.

Dr. Charles N. Leach, Rockefeller Foundation, New York.

Dr. I. Gomoiu, who will be identified with rural public health work upon his return to Roumania, is spending his time at the Training Station studying the organization of a county health department and devoting some attention to the malaria problem.

Dr. Josip Vrtovec, Yugoslavia; mainly interested in the activities and organization of a county health department.

Dr. Miguel Bostamente, Mexico, is studying the organization of a county health program as well as doing laboratory and field work in connection with the antimalaria campaign.

Dr. J. H. Janney, Rockefeller Foundation, New York, who is to take charge of the Training Station at Indianola, Mississippi.

Dr. Selyven-Clarke, staff member of the Rockefeller Foundation, stationed in Africa.

Dr. A. G. Payne visited the Mayo Clinic during the month of September.

Dr. J. C. McNair has completed a four weeks course at the Sanatorium in Magee and has returned to his home in Fayette, Miss.

Dr. J. A. Price and his assistant, Dr. Over-schmit, of Oakville Sanatorium, Shelby County, Tennessee, stopped over at the Sanatorium en route to Biloxi, where they attended the Southern Tuberculosis Conference.

Dr. and Mrs. Henry Boswell, Dr. and Mrs. Kemp, and Dr. May F. Jones attended the Southern Tuberculosis Conference in Biloxi. Dr. Jones was on the program for a report on the Health Camp work for children in the state, and also served on the Welcoming Committee.

The Southern Tuberculosis Conference and Southern Sanatorium Association met in Biloxi, September 12-15, 1928. There were group discussions on various subjects, such as: Seale Sale Institute, Tuberculosis Among Negroes, Tuberculosis in Childhood, and County Programs.

Dr. Henry Boswell presided at the evening session on September 12th, Dr. L. J. Moorman on the evening of the 13th and Dr. James A. Price on the evening of the 14th.

Dr. Felix J. Underwood welcomed the Association on behalf of the State Board of Health.

BOOK REVIEWS

Plastic Surgery of the Orbit: By J. E. Sheehan, M. D., F. A. C. S. New York, Macmillan. 1927. pp. 348. Illus.

Very few books tell you what you really want to know, and still fewer contain even a reasonable number of new ideas, or even old ideas differently expressed.

Dr. Sheehan has written the most complete and instructive volume on the "Plastic Surgery of the Orbit" that has ever been published in America. It represents the work of an experienced teacher and writer who thoroughly understands the subject and who tells you important interesting facts not usually found in other books.

Plastic surgery that will probably not materially reduce disfigurements should be left undone. Mutilating operations, especially about the face, should be performed only by those who are thoroughly familiar with the principles and practice of plastic surgery. Unfortunately much of our plastic surgery in the past has only substituted one type of disgusting deformity for another. The first operation should always be the first step towards cosmetic repair.

The chapter on physiology and anatomy of the skin is so interestingly written that it did not even make me drowsy. The author's simple and lucid description of the sympathetic nervous mechanism, based upon the work of Gaskell, is a pleasure and joy to read, as is the function of the capillaries with their independent contractility as first described by Krogh; and the physiology of the superficial lymphatics as studied by Le Calve.

The preparation, after care, and types of skin grafts are then discussed. The experiments of Tinker and Sutton apparently show that freshly prepared five per cent acriflavin in fifty percent alcohol and ten per cent acetone is at present our nearest practical approach to a skin antiseptic, and is apparently superior to tincture of iodine in plastic surgery.

The following paraphrases give one an excellent conception of the context in the next several chapters. Skin that is wrongly cut, cannot be rightly sutured. The use of too much adrenalin from the so-called sterile bottle is a frequent cause of delayed healing. Cutting across the tension lines of the skin increases the visible scar. Scar must be entirely cut out of the picture. If a graft is to be placed anywhere before transference, it should be in the serum liberated at the place of excision. Bleeding is another enemy of perfect healing. The no-touch system is important in all plastic surgery procedures. Any suture that has to remain longer than four days

ought not to have been used. There is always the tendency to overdo the employment of bandages.

The author prefers cat gut sutures to stop bleeding; chronic cat gut to relieve tension; silk worm gut for sub-cuticular stitches; horse hair as the skin suture material par excellence, and paraffin silk as second choice. Hygroscopic threads at different skin levels in the treatment of edema and the Ferris-Smith pressure bag in post-operative plastic treatments are interesting and important innovations.

The remainder of the book is devoted to a description of the various plastic procedures. Repair of an upper lid may be accomplished by a reversed Z incision or by a graft from the upper lid of the opposite side. The use of pedicle grafts from the chest, or forearm, to cover defect of the upper and lower lid hardly seem adapted to the average American patient.

Properly tattooed spots on the lid margins very closely resemble lashes in appearance. Actual replacement can be accomplished with the Kromeyer needle or a graft from the brow of the same side.

Loss of the lid margin is often best replaced by an angular or vertical notch, remembering that the anterior and posterior parts should not be sutured in the same line. Vertical lid injuries may often be greatly improved by free canthotomy and scar excision with liberating incisions. Island artery flaps with pedicle replacements of epithelium or mucous membrane; tarsal and facial muscle transplants; and epithelization of deformed sockets are best operated upon by those with broad experience and appropriate hospital facilities.

In America, the Hess, Motais and Angelucci operations for ptosis are better known than that of de Blasovics. We ophthalmologists, generally speaking, prefer extirpation of the lachrymal sac to the various nasal operations such as that of West or Toti. Dr. Sheehan being essentially a rhinologist, prefers the nasal route. That is no reflection on any of us.

The final chapters include a complete description of the various entropion and ectropion operations as well as the restoration of lid and tarsal defects. A discussion of local and general anesthesia as applied to the subject follows. A short chapter deals with the use of paraffin which the author believes should on no account whatever be introduced into the tissues of the human body.

An interesting preface by Professor Sibleau of Paris, the author's preface, numerous artistic illustrations and a fairly complete index, add to the value of this very well written and constructive volume.

CHAS. A. BAHN, M. D.

Constitutional Inadequacies: An Introduction to the Study of Abnormal Constitutions: By Nicola Pende, M. D. Translated from the Italian by Sante Naccarati, M. D., Sc.D., Ph.D. Philadelphia, Lea & Febiger. 1928. pp. xv+270, 12 figures.

Pende, professor of clinical medicine in the Royal University of Genoa, a pupil and follower of Viola, presents in this work an epitome of the principles of constitution and their applications in individualized medicine.

About half of the book is devoted to general discussion and definitions of constitution, together with the formulae employed in differentiating constitutional types. Further, nine chapters deal with constitutional anomalies and inadequacies of separate systems. There is a chapter concerned with the principles of therapy of constitutional inadequacies, from which the following excerpts are quoted as representing a summary of the objective of the study of constitution.

"Hitherto the hygiene and prophylaxis to which we have turned our attention have been hygiene and prophylaxis of the community. Over against this social medicine, which seems to us to have but a very limited success in saving the individual, we place, as more indispensable, the prophylactic care of the individual, even while willing to make the latter work in unison with collective medicine and march side by side with it. Individual medicine, unlike collective hygiene, aims to apply to each individual, after a thorough preliminary study of his somatic and psychic personality, all the methods available to modern therapy, in order to strengthen the weak points of his bodily fabric and his psychic make-up. . . . We put up a struggle for the individual in order to secure for each one the greatest physical and psychic well-being within the limits assigned by the iron laws of heredity, which, as has been said, dominate the individual constitution. . . . In order to strengthen organisms that are affected by constitutional weakness, we must have recourse to the great directing principles of stimulative training of the miopragic organs, functional re-education and rational gymnastics of the organic apparatus, with a view to carrying their small range of functional excursion to the farthest limits possible. . . . In this training of organs we must never lose sight of the unitary principle of constitution, that it is impossible to act upon one organ or apparatus without taking account of the condition of other parts of the body that are in intimate anatomical and functional correlation with that organ. . . . Another great principle of individual prophylaxis and of the treatment of organic miopragia which we must adopt when training is not possible or produces no noticeable results in that of functional economy. This prin-

ciple consists in not imposing greater labor on an organ than it can perform, but in seeking, on the contrary, ever to augment its reserve of energy by relative repose, and thus to prevent habits of ill-regulated living out of proportion to the capacity of the functional effort of the organs, from ever dragging these organs into a condition of pathological decomposition. . . . A third principle which has the same aim of avoiding the premature wearing out and exhaustion of the already poor nutritive and functional reserve of a constitutionally weak organ is that of protecting it from all those abnormal stimuli—toxic, physical and psychic—that may electively damage the organ itself. . . . Finally, we can, up to a certain point, undertake to correct constitutional anomalies by means of organotherapy, and especially by seeking to act upon the system which is the regulator, par excellence, of the trophic and functional equilibrium of the organism—the endocrine system. . . . Lastly, eugenics and prenatal care of the child will seek to limit as much as possible the harmful influences exercised by constitutional anomalies of parents upon the constitution of their offspring. . . . Individual prophylaxis, or the reclaiming of constitutions that are weak in body and mind, will enter upon its phase of definite practical realization the day it becomes possible for every individual at any period of his life to have a complete somatic and psychic constitutional formula recorded from time to time in a suitable individual book of health."

HAROLD CUMMINS, PH.D.

Practical Clinical Psychiatry for Students and Practitioners: By Edward A. Strecker, A. M., M. D., and Franklin G. Ebaugh, A. B., M. D. Second edition, enlarged and revised, with illustrations. Philadelphia, P. Blakiston's Sons & Co. 1928. pp. 458.

This, the second edition of this volume shows a marked completeness over the first edition. It is written in a understanding vein, the composition of the subject matter therein has been brought down to date.

The authors are well trained in neuropsychiatry, having had much contact with their specialty, and the neuropsychiatric atmosphere of institutions known for progressive and scientific medicine. I may say that this volume can be classed as one of the newer psychiatry so necessary in our present stage of medical education where, in a number of medical colleges, so little time is spent in the teaching of this particular branch of medicine becoming necessary for the physician following his graduation to occupy some of his time in reading a volume of this type as an aid in contacting his general practice.

The chapters are well written, especially the paragraphs in chapter four under "Organic Psychosis" which deals with the malaria treatment of neuro-syphilis. In this you find the very latest research data of the authors on this very interesting subject. The case history method of teaching as used by the Massachusetts General and McLean Hospitals of Boston are noted. This should make the subject much easier for those interested.

The nomenclature used throughout likewise shows the progressiveness in psychiatric fields of the authors. It is to be hoped that general hospitals will see fit to include in their nomenclature this series of diagnoses for in many institutions there are still in use antiquated nomenclatures dating back many years.

The paragraph of dedication to the late C. Lincoln Furbush is a tribute to one whose energies and efforts while in office was instrumental in elevating the standards of mental hygiene in his community.

The foreword by Burr, of the University of Pennsylvania, is as only a master can write. The neuropathology of Winkelman, a pupil of Spiller, is covered thoroughly and intelligently.

This volume crystallizes the efforts of two competent men extensively trained in neuropsychiatric problems.

W. J. OTIS, M. D.

International Clinics: 38th Series, V. 2, 1928. Philadelphia, J. B. Lippincott Co. 1928. pp. 344.

This issue of *International Clinics* marks the 15th volume. There are several very interesting reminiscences in the book. The policies of the clinics are outlined. Several important medicodental subjects are dealt with at great length. As a whole the issue lives up to the usual high quality of the work.

I. L. ROBBINS, M. D.

Gonococcal Urethritis in the Male: By P. S. Pelouze, M. D. Illustrated. Philadelphia, W. B. Saunders Co. 1928. pp. 357.

The mission of this work is plainly set forth by the author in his preface. He has endeavored in his book to "correlate and arrange knowledge of the disease (gonorrhea) so that it can be easily understood; to unravel the endless skein of pseudo-science that has been spun about it." This he does in a most lucid fashion. Commonsense marks practically every page of the mon-

ograph. His years of teaching urology in the University of Pennsylvania give his opinions weight that deserve serious consideration from the physician interested in the subject. This book should be in every hospital library where the internes and the younger staff members could refresh their memory relative to the important phases of gonococcal therapy. In the introductory chapter he attacks the "moral turpitude" of the public today and its bearing on the "social disease." The lay reader can obtain information from this chapter of as much value to himself as can the average physician.

The peculiarities of the Neisser diplococcus, the pathology of the malady, susceptibility and immunity, and the defensive processes against the infection are explained in a brief yet clear and convincing way.

It is only proper that a treatise such as this should devote the proper space to treatment. Pelouze devotes nearly a hundred pages to management of urethritis and its complications in the male.

In discussing the oral administration of drugs for the disease he fails to mention pyridium, which is unquestionably of much value especially in the acute stage. Under local treatment to the urethra with antiseptic solutions he compares the syringe method with the irrigation treatment and attempts to explain that the irrigation method fails because of the "foolish, bungling way in which it has been used." This will hardly be accepted by the majority of younger workers in the field. The syringe method unquestionably is superior. His views in regard to vaccine in gonorrhea are also far from being in accordance with modern thought. However, none of these points detract from the value of the book. Pelouze gives his personal opinions and experience throughout—to the exclusion of the opinions of others—and this is sufficiently commendable to recommend it.

The latter third of the book—Part II—is devoted to the clinical case-records exemplifying instances of every conceivable phase of gonococcal invasion in the male, and is alone well worth the price of the book. Teaching disease by illustration with case-records has now established itself on a firm footing. From these many examples quoted by Pelouze, the clinician can profit much.

On the title page appears the legend "for practitioners." We are glad to note that the prosaic "for general practitioners" has been dispensed with. This is truly a timely contribution to the subject for all practitioners and deserves a wide circulation and cordial reception.

H. W. E. WALTHER, M. D.

International Clinics, Vol. III: Philadelphia, J. B. Lippincott Co. September, 1927. pp. 311.

The section devoted to diagnosis and treatment contains numerous articles, all ably written and containing a wealth of valuable data. Of these articles, "The Clinical Aspect of Thrombo-Angiitis Obliterans," by Dr. Steel, furnishes a fairly complete differential diagnosis of the allied diseases, augmented by beautiful illustrations in color. "Differential Diagnosis and Treatment of Gall-Bladder Disease," by Dr. Held and Dr. Gray, and "The Electrocardiographic Study of the Various Forms of Heart Block," by Dr. Wilson, are articles, each in its individual field, worthy of much merit.

In medicine, Drs. Goldstein and Goldstein give a thorough review of the recent literature on "Pneumococcus Meningitis and Endocarditis," together with interesting and complete case reports.

Dr. Masland writes an instructive article on "Deformity Correcting Splints for Fractures of the Long Bones," in the section on Surgery. In Obstetrics, Dr. Longaker and Dr. Harrimon ably discuss the advantages and disadvantages of the Kielland forceps.

The sections on neurology, medical history and post-graduate study are each supplied with one or more articles by able contributors.

The wide range of interests represented in each of the articles and their splendid portrayal combine to make the volume most delightful and instructive reading.

MORELL W. MILLER, M. D.

Modern Methods of Treatment: By Logan Clendenning, M. D. With chapters on special subjects by H. C. Anderson, M. D., J. B. Cowherd, M. D., H. P. Kuhn, M. D., Carl O. Rickter, M. G., F. C. Neff, M. D., E. H. Skinner, M. D., and E. R. DeWeese, M. D. 2d Ed. St. Louis, C. V. Mosby Co. 1928. pp. 815.

Dr. Clendenning's book can be unreservedly recommended as one of the most useful to the medical student and practitioner. As I turned its pages my respect grew for the manner in which the author has carried out his purpose. I was particularly struck by three qualities; first, it is most readable—a quality which so many text books on therapeutics lack; second, it is stimulating, particularly because of the plan of giving something of the historical background and particularly because of the quoting of pioneer workers in each field. This is supplemented by a short list of references at the end of each chapter. These references are being chosen with the ideas in view that they should be easily available and au-

thoritative. The third quality of the book is, of course, the most essential, namely, that it is reliable. The methods chosen for elaboration and recommendation are those which have been put to the test of time and experience, have a sound scientific basis, and represent modern up-to-date practice.

I. L. LEMANN, M. D.

Introduction to Objective Psychopathology: By G. V. Hamilton, M. D. St. Louis, C. V. Mosby Co. 1925. pp. 354.

A novel and somewhat daring presentation of the subject most interestingly arranged and presented. The author's interpretation and translation of Freudian concepts on the basis of his own experience and clinical studies are quite refreshing.

F. L. FENNO, M. D.

Cardiac Arrhythmias: By Irving R. Roth, M. D. New York, Paul B. Hoeber, Inc. 1928. pp. 210.

This volume on heart arrhythmias can be highly recommended to the student and general practitioner. The mechanism of the arrhythmias is very clearly brought out by graphs and original diagrams. Teachers of cardiology will find the graphs of value for demonstration purposes as the author has incorporated in them not only the cardiac mechanism involved but also the heart sounds, arterial and venous pulses. The aim of this volume, in contrast to more extensive works, is to offer the elements of graphic studies in the arrhythmias and to emphasize their clinical features. The first part of the book is a review of the anatomical and physiological facts essential to the understanding of the mechanism of the normal heart beat. The second part deals exclusively with the arrhythmias. The book is simply and clearly written and well illustrated.

RANDOLPH LYONS, M. D.

International Clinics, 38th Series, March, 1928, Vol. 1: Philadelphia, Lippincott Co. 1928. pp. 307.

The reviewer did not find many articles of general interest. The chapter on medical progress of 1927, however, was quite complete and gave much information. Another article which deserves special mention is that describing an ingenious splint for hand fractures. The following subjects may prove of interest: Sanochysin, tularemia, autogenous cerebral abscess, electric mouth gag in tonsillectomy.

NARCISSE THIBERGE, M. D.

Hay Fever and Asthma: By Balyeat, A. M., M. D.
Philadelphia, F. A. Davis Co. 1928. pp. 310.

It was my privilege to review this book when the previous edition appeared; from a compend it has grown to a full-fledged book, well illustrated and clearly edited. Much stress is put in this edition on the improved method of exact study of the various pollens and the area where several pollens are found is studied. Surveys, maps and colored plates are given and will be found of invaluable help to the student.

Among the new chapters added are the following: Atmospheric influences, focal infections as a cause, skin allergy, all about kapok and ephedrin, and most interesting of all, the chapter on orris root.

All those interested in allergy should certainly read the book.

NARCISSE THIBERGE, M. D.

Textbook of Bacteriology: By William W. Ford,
M. D. Philadelphia, W. B. Saunders & Co.
1927. pp. 1069.

After carefully reviewing the Text Book of Bacteriology prepared by Dr. William W. Ford, I have found it to be one of the most complete editions ever published on this subject.

I do not believe that any library is complete without this book.

ANDREW O. FRIEDRICH, M. D.

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THE DOCTOR AND THE PUBLIC*

JOHN DARRINGTON, M. D.,
YAZOO CITY, MISS.

I wish to express to this Association my very sincere appreciation of the honor they have conferred upon me. It is indeed a great compliment to any man to have the doctors of his State testify by this election their faith in his character and their opinion of his professional integrity and attainments, and if I could feel worthy of this faith it would be a great satisfaction.

The subject of the "Doctor and the Public" is one of such great scope, covering the efforts, hopes and ambitions of such a mass of people, that in my short discussion I shall only touch upon a few important facts. Progress in every department of human endeavor seems in this generation to have received a wonderful stimulant and many amazing things have been accomplished. But human nature is so constituted that the miracles of yesterday are regarded as commonplace today and the great progress in medicine and surgery is accepted as a matter of fact. But little thought is given to the men who have devoted their time and in many instances sacrificed their lives in an unselfish effort to serve their fellow man, and make this world a safer place for the human race. What has been accomplished would fill volumes but I shall mention only a few of the discoveries that are particularly spectacular.

The prevention of smallpox is one. The cause of yellow fever is known, a most important discovery for us, for this generation has seen the people of our Southland stampeded and our business paralyzed due to the appearance of this disease. We shall never see that again. Typhoid fever has killed more people than the bullets of all the wars of the world. Malaria is a disease that has for centuries greatly damaged us both physically and financially, but now that the cause is known, will be, in time, simply a matter of historic interest. The prevention of tetanus and hydrophobia should be mentioned. Diphtheria should receive special emphasis for when this disease invades the home the serious illness of the baby fills our hearts with terror and we are mortified at our neglect of toxin-antitoxin which is a wonderfully dependable preventive.

The baby is the great joy maker of this world. The home with a baby in it is a happy home, and if it happens to be a grandbaby, emphasizes this statement. Fame and fortune may come to you but as a real permanent satisfaction the baby heads the list, and if any of you are missing this wonderful opportunity for real pleasure my recommendation is—well, it is obvious.

The welfare of the baby is of the greatest importance, and in spite of this fact, we can find thousands of our little children in Mississippi who are not protected from diphtheria, typhoid fever and smallpox. So far as these children are concerned, they had just as well have lived before these wonder-

*President's Address read before the Mississippi State Medical Association, Meridian, Miss., May 3-10, 1928.

ful preventive measures were discovered. If your baby dies from one of these diseases, don't forget that your gross neglect killed it. The first of this month was "Child Health Day" and its slogan is "Better Children for our Nation; a Better Nation for our Children". We should aid this movement in every way. The death rate of infants has been materially reduced, and we are exerting every effort to secure a greater reduction.

The death rate of grown people can be reduced by periodic health examinations. Disease will be discovered early and in many instances will be eradicated in their incipency.

Many of you have your automobile looked over by a skilled mechanic even though it is apparently in good condition, but you do not consult your doctor until there is a bad knock in the human engine and unfortunately he cannot follow the mechanic's plan and order you a new heart or a late model kidney. Learn your defects EARLY. Dr. William Haggard in an address on this subject said: "Neglect your business if you must, neglect your golf if you can, neglect your wife if you dare, but don't neglect your physician and a yearly physical examination and health inventory on your birthday."

These diseases that I have mentioned are just a few of a long list that could be named in which scientific medical men, working for your good alone, have produced valuable remedies and in some instances specifics, but unfortunately the number of doctors who have shown unusual proficiency in research work and in medical discoveries is limited, for it seems that nature is not liberal in producing leaders, but in a moment of great generosity, gives to each generation a few geniuses in each department of human endeavor. This generation is presented with Edison for illumination; the Wright brothers for rapid transportation; DeForrest and Marconi for communication;

McDowell, Long, Lister, Sims, Pasteur. Koch and others in medicine and surgery.

The public cannot be served directly by these masters, but you have a vast army of faithful, honest and competent doctors, who are ever watchful of your welfare and daily render you splendid service. These men have been well trained for their work and following our earnest desire to furnish you competent doctors we have gradually raised the requirements so that today the course of training includes four years at college, four years at the medical school, and usually one or two years as intern in a hospital. Ten years of preparation and then a rigid examination before the State Board of Examiners. We do this for your protection, while the facts are, I regret to say, that often you are lured by flagrant advertisements and extravagant claims to consult the various types of charlatans, quacks, and alleged healers, some drugless and some drug givers, but all without merit under the cool analyses of scientific investigation. They feed upon you and grow fat. There is no legislative restrictions or even moral restraint covering this class of human leeches and if you are to be saved from this imposition you must be saved by your own volition. Correct information may be obtained by intelligent investigation and a definite appreciation of the truth which we are constantly presenting to you.

Some one has said that "only the sick are interested in health" but this is not true. Your State and your Government spend money every day to keep you well. In our own state we have a health department composed of competent men who by their intense earnestness and unusual activities have been able to accomplish results that have attracted attention in other states and even from the health department in Washington. Our State Board of Health is exerting every effort not only to teach you the fundamental laws of sanitation and hygiene, but they are placing in many counties all time health officers, who are devoted

ing and spending money solely in your behalf.

That they are occasionally opposed in this philanthropic work proves that ignorance has always been and still remains the greatest barrier to human progress. Education of the masses has been slow and tedious and therefore rather discouraging. Many people, not always ignorant people, find it difficult to realize that doctors, who make their living out of sickness, could be so vitally interested in preventing sickness. It is sacrificing our material welfare for the public good and that idea is too big, broad and generous for their little minds and selfish hearts to grasp. The great Elisha Bartlett appreciated the value of the humble, honest and hard working doctor when he said: "There is no process which can reckon up the amount of good which the science and art of medicine have conferred upon the human race. There is no moral calculus that can grasp and comprehend the sum of their beneficent operations. They have lightened the load of human sorrow. They have rekindled the lamp of hope in the bosom of despair. And finally when exhausted in all their resources and baffled in their skill—handmaids of philosophy and religion—they have blunted the arrows of death, and rendered less rugged and precipitous the inevitable pathway to the grave". That is a noble service to render to your fellow man.

Now what has the public done for the doctor? As a state you have appropriated money and as individuals you have furnished financial assistance, and what is of more importance, you have in many instances devoted your time and your influence in aiding us in this great educational campaign for better health. The editors of our papers, readers as they are and great moulders of public opinion, have rendered valuable assistance, and I am pleased to have this opportunity to express to them a word of appreciation. It has been my hope that I might be able in this short talk to present for your consideration a few simple facts.

Facts that you should know. Facts that if placed in practice will be of inestimable value to you personally and by your interest and your efforts may prove to be equally as beneficial to your friends.

So let the doctors and the public unite in an earnest, honest, faithful, and unselfish effort to serve the poor, the sick and the afflicted and when we have done that, we will have the satisfaction of knowing that we have given the noblest service that can be rendered by man.

STAPHYLOCOCCIC TRACHEO-BRONCHITIS FOLLOWING TONSILITIS.*

J. S. ULLMAN, M. D.,

NATCHEZ, MISS.

An attempt to find anything in the literature on this subject brings me to the conclusion that this is a rare condition. Up to the present time, the only other cases that I can find are five reported by R. C. Lynch, of New Orleans⁽¹⁾, in May, 1924. In none of his cases is anything said of the tonsils. In my case the illness began as a tonsilitis and the trouble was confined to the tonsils for several days. My little patient, six years of age, did not seem ill at all, and the temperature did not go above 100. Because of the prevalence of diphtheria in town, a culture was taken and a report of "no B. diphtheriae present. Pure culture staphylococcus albus" was made.

Because of hoarseness developing the next day, Dr. L. S. Gaudet was called in to make a laryngoscopic examination. Lime water steam inhalations were prescribed and afforded the patient considerable relief. During the next few days a few transitory rales were heard, but there was no evidence of any consolidation or even of anything definite enough to be called bronchitis. On the sixth day, however, with a temperature of only 99, quite a number of mucous rales were heard over the chest, but my notes

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

state that the throat looked better. We felt much encouraged, but on the seventh day of the illness, December 25, 1927, I was called at 6 A. M. because the patient had been complaining for two hours of difficulty of breathing. Her temperature at that time was 99 2/5. Dr. Gaudet was called again and found a whitish membrane extending down the pharyngeal wall into the larynx and trachea. It seemed that in spite of the low temperature, cyanosis was increasing rapidly and the patient's circulation was growing weaker. She was rushed to the sanatorium and preparation made for tracheotomy and bronchoscopy, but by the time the hurried tracheotomy was performed and the bronchoscope introduced, the patient only breathed once or twice. Although considerable fibrinous exudate was withdrawn, all efforts at artificial respiration were without avail in spite of the fact that they were kept up for more than an hour. The material removed by Dr. Gaudet was a cast of the trachea and bronchus. Cultures taken from this material again produced nothing but the *staphylococcus albus*.

There are a number of cases in the literature of diphtheritic tracheo-bronchitis, but so far as I have been able to find the five cases by Lynch and the one of mine are all that have been reported as due to *staphylococcus albus*. As mentioned above, my case is the only one reported as clearly being a definite extension from what began as a very trivial tonsillitis. The signs to be remembered are: a low temperature, hoarseness, which may amount to aphonia, and cyanosis. In some of the cases a portion of the membrane becomes loose and we have a peculiar flapping sound in the larger bronchii, which the French describe as "bruit de drapeau."

In the matter of differentiation, of course, the only positive and definite procedure is a thorough bacteriological investigation. Clinically the membrane is of a yellowish white rather than the dirty gray appearance of diphtheria. The diphtheri-

tic membrane is the result of a destructive process in the mucosa, while the staphylococcic membrane appears to be a deposit of the fibrinous exudate on the surface which is much more easily detached and practically without any tendency to bleeding. In diphtheria the temperature is high and from the beginning the patient seems ill, while in the staphylococcic tracheo-bronchitis the patient does not seem at all ill until the cyanosis and toxemia develop, and these seem to be a late feature.

Some of the continental authors as well as the older American writers speak of a fibrinous bronchitis of a more chronic type, but nothing I have been able to find would answer to the description of this trouble but the cases reported by Lynch.

In 1919, Chickering and Park⁽²⁾ reported a number of cases of pneumonia due to *staphylococcus aureus* occurring in army camps. Quoting them: "From the standpoint of our present knowledge, it would seem probable that the particular *staphylococcus aureus* found in the lungs of these cases was no other than that found often in the mouth secretions of healthy persons. However, the depression of the individual's defensive mechanism by the primary epidemic infection was sufficient to enable the organisms subsequently to produce widespread pulmonary lesions. This, in turn, explains the occurrence of the infection in almost every organization in Camp Jackson and a higher incidence of the infection among the more recent arrivals in camp irrespective of the States from which they came."

My patient was not depressed and there was nothing to indicate a lowering of resistance to account for the tonsils being infected by the *staphylococcus albus*.

Pfaundler and Schlossmann say⁽³⁾ "Membranous or plastic (fibrinous) bronchitis is a disease the chief characteristic of which is tubular, white or yellowish white exudation on the mucous membrane of the trachea or of the bronchial tree

Leaving out of consideration the frequent diphtherial bronchitis, bronchial croup in its limited sense, one not infrequently finds in croupous pneumonia, a membranous coagulum formation in the finer bronchi emanating from the alveoli. Besides these two diseases which we do not consider here, membranous bronchitis rarely appears, and is in children especially seldom met with, probably only from about the fourth year on."

It is evident that anti-diphtheritic serum would be of no value in such cases.

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Since writing the above a personal communication from Dr. R. C. Lynch of New Orleans states that he has seen a few more cases and that "I am quite sure that they are typical, and once diagnosed, the treatment as outlined is better followed than by the use of such large quantities of anti-diphtheritic serum. *** None of the cases had an acute follicular tonsilitis, or anything that the tonsils could be blamed for. So far as I can think at this time, five of the cases recovered, and the sixth died of a second attack, which resembled the first in every detail."

DISCUSSION.

Dr. Lucius S. Gaudet (Natchez): Last Christmas proved to be a very sorrowful day for Dr. Ullman and myself as well as the family of this poor little child. There were five children in this family, four boys and one girl, and unfortunately on that day the little girl died. There is very little to offer in the way of discussion because of the fact that these cases have been very rare with us.

The staphylococcus albus is a very common organism, and not prone to do much harm as a rule. The particular anti-bodies fortifying the system against this infection, for some reason or other must fail at this time, and the barriers are let down and a gradual extension from the upper respiratory to the deeper respiratory take place. I wonder what relationship tracheo-bronchitis bears to the old condition known as suffocative catarrh?

We deal first with a catarrhal inflammatory process which extends into the sub-mucous layers of the trachea and bronchi. If the process continues to go deeper into the vascular or areola tissue we

have ulceration and necrosis of the upper layers and great thickening and obstruction of the air passages and cyanosis.

The great point that we should stress is the fact that most of us would, under ordinary circumstances in a case of that kind, immediately give diphtheria antitoxin, but as the child was so little sick at that time we took the time and made the cultures and not finding any positive proof of diphtheria, we could not give it. We had no difficulty in making examinations. She was a very good little patient. We had no difficulty in passing the bronchoscope. We did not even use an anesthetic, because she was practically in a dying condition when we took her to the Sanatorium; in other words, she became very much worse very quickly.

BLOOD-PRESSURE IN PULMONARY TUBERCULOSIS.*

OSCAR W. BETHEA, M. D.,

NEW ORLEANS.

Pulmonary tuberculosis is so prevalent and its recognition is of such importance to the patient and to others that any aid to diagnosis is always of interest.

It has been recognized that the tendency of the disease is toward a reduction in blood-pressure. Some feel that this reduction only runs parallel with the general loss of weight and the exhaustion of the patient, while others believe that there is a characteristic tendency to a hypotension beyond this.

Some standard texts do not mention blood-pressure in connection with this disease, others only briefly refer to it, while a few discuss it in considerable detail.

The attitude of some of the best known writers is well shown by the following extracts:

a. Landis in *Oxford System of Medicine*. "The blood-pressure is usually low during the active stage of the disease. As the symptoms disappear and health returns the blood-pressure rises to a normal level. In cases of 'masked' or 'occult'

tuberculosis a low systolic pressure and a marked lowering of the pulse pressure in the erect posture is of great diagnostic significance."

b. Paterson in *Tice's System*, says in part: "It may be stated as a general rule that in all stages of tuberculosis a condition of hypotension exists and that this hypotension is secondary to the tuberculous process."

c. Lawrason Brown in *Cecil's Text-Book of Medicine*. "In favorable cases the blood-pressure is usually normal but often in the advanced stages, especially when there are ulcerative lesions, the systolic pressure is low and the diastolic high. In general, however, pulmonary tuberculosis affects the blood-pressure less than any other wasting disease. The difference between the lying and standing pressure may be greater than normal."

d. Norris & Landis in *Diseases of the Chest*. "The blood-pressure in tuberculosis subjects is usually low. If the disease undergoes arrest and health is restored the blood-pressure returns to normal. Cardiac weakness is not uncommonly present and occasionally is the cause of death."

e. Craig in *DaCosta's Treatment*. "The blood-pressure is almost always low in individuals suffering from tuberculosis, this peculiarity being so universally true that the presence of arterial hypotension should always suggest the probability of this diagnosis."

Some years ago we arranged at Charity Hospital, New Orleans, a male, white Tuberculosis Evacuation Service, of which I was placed in charge. All male, white patients seeking admission to the hospital, if suspected of tuberculosis, were sent to this service to be worked up, and if found to have the disease disposed of in one of the following ways, depending upon the physical, financial and domestic status of each case:

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

1. Sent to the Breaux Tuberculosis Building as vacancies occurred.
2. Sent to Camp Hygeia.
3. Arrangements made for them to be sent to some other institution as private patients.
4. Improved and sent to the Out-patient Department.
5. The disease arrested and the patient sent home for further treatment.

In diagnosis we soon became interested among other things, in the matter of blood-pressure and for 31 weeks kept a weekly record of the blood-pressure of these patients.

As a matter of interest for comparison we also recorded weekly readings of the patients in the rest of my service, which was devoted to male, white, general medicine.

Many readings were missed due to patients being in the hospital too short a time or being in the courtyard or elsewhere at the time of making the weekly rounds for pressure readings.

In the tuberculosis service during the period of this investigation we made 474 blood-pressure readings on a total of 151 patients. In the general medical service we made a total of 344 readings for comparison.

The ages of the tuberculosis patients averaged over 40 years, all but five were over 20 years of age, the youngest was 16.

Only seven patients showed a systolic pressure as high as 140 at any reading and only one went beyond this amount. This man gave one reading of 160. He was 64 years of age and had been admitted with a tentative diagnosis of tuberculosis, a positive diagnosis was never established but he did have advanced arterio-sclerosis with senile psychosis. I feel that he should not be included in these statistics. Of the other six whose systolic pressures reached

140 only two were found to have positive sputa and in the other four there was always an element of doubt as to their being tubercular.

Of the total of 474 readings, if we omit the case of the old man previously mentioned, the record of systolic pressures would be as follows:

Between 140 and 130.....	19
Between 130 and 120.....	33
Between 120 and 110.....	82
Between 110 and 100.....	116
Between 100 and 90.....	132
Between 90 and 80.....	59
Between 80 and 70.....	16
Between 70 and 60.....	1
Between 60 and 50.....	1

In the general medical service the 344 blood-pressure readings were as follows:

Over 200	7
Between 200 and 190.....	3
Between 190 and 180.....	4
Between 180 and 170.....	4
Between 170 and 160.....	13
Between 160 and 150.....	21
Between 150 and 140.....	27
Between 140 and 130.....	48
Between 130 and 120.....	54
Between 120 and 110.....	78
Between 110 and 100.....	50
Between 100 and 90.....	27
Between 90 and 80.....	5
Between 80 and 70.....	2
Between 70 and 60.....	1

The averages of these blood-pressure readings were as follows:

Tuberculosis service—systolic pressures 109, diastolic pressures 65.5, pulse pressures 44.5. Diastolic pressures averaged 60 per cent of systolic pressures.

General medical service—systolic pressures 128.5, diastolic pressures 70.5, pulse pressures 58. Diastolic pressures averaged 63 per cent of systolic pressures.

Through the courtesy of Dr. Durel I have been able to investigate and submit

the following report on the blood-pressure readings of the patients now in the Dibert Building for tuberculosis.

Of the 43 patients, 18 show a systolic reading of over 100.

25 of 100 or under.

14 of these are 90 or under.

3 show a systolic pressure of 120.

1 of 130.

1 of 135.

While it is recognized that the number of patients on whom this data is based is rather small, in so far as it does have value, it tends to establish the following conclusions:

Conclusions—Hypertension is evidence against a diagnosis of pulmonary tuberculosis.

The tendency of the disease is toward hypotension.

Pulmonary tuberculosis shows nothing characteristic in the percentage relation between the systolic and diastolic pressures.

DISCUSSION.

Dr. George Bel (New Orleans): I consider it a privilege to have the opportunity of making a few remarks with reference to the paper presented by my colleague, Dr. Bethea. Dr. Bethea is thoroughly qualified by reason of his vast clinical experience and observation, both as a teacher in the School of Medicine of Tulane University, and as a practitioner of internal medicine, to express expert opinions on the important subject of blood pressure in tuberculosis.

As we have been so frequently informed tuberculosis is a universal disease, visiting practically all races and every latitude, and, as the modern theory of the prevention and curability of the disease depends primarily upon early diagnosis, it becomes the duty of the physician to determine the existence of the disease by carefully employing all known methods, symptoms, signs and tests at his command, and surely, blood pressure determinations deserves serious consideration.

The blood pressure is lowered in many cases from the very onset, and, in the majority of cases the preponderance of evidence suggests the existence of hypotension.

Hypotension naturally varies during different stages of tuberculosis, depending upon the deter-

mining factor, which is always a toxemia. In the truly primary incipient infection the irritation of the tuberculous toxin causes a dilatation of the arterioles and is accompanied by lowered blood pressure and we may extend this statement to cover many obscure and inactive cases.

As secondary infection, due to secondary invaders of all sorts, such as, pyogenic cocci and bacteria of all types, yeast cells and moulds, supervene, the disease advances and produces an asthenic condition with lowering of the blood pressure.

It is well to remember in the presence of certain complications, especially arteriosclerosis, nephritis, cardiac hypertrophy, etc., that the blood pressure may be elevated either permanently or transitorily.

I have been impressed by the uniform diminution of blood pressure exhibited by my patients, and in cases of incipient infection, when the diagnosis is somewhat obscure, I have attached a degree of importance to a continuous diminution of blood pressure.

While I believe that continued hypotension is of diagnostic importance and adds to our clinical armamentarium and should always be carefully considered, we must remember that no one symptom of tuberculosis is diagnostically conclusive excepting the finding of tubercle bacilli in the sputum.

Dr. W. J. Durel (Covington): In the last thirty years, I have made the routine practice of taking the blood pressure of all our cases, and these are the conclusions that I have drawn: In the active cases of the young individual, there is always a low tension, but remember that the low tension of the tuberculous patient is a low tension of the systole.

Now, in coming to conclusions, we must consider that the individual knows he has tuberculosis, and he is also susceptible to other fears. Take, for instance, if we have a woman coming to us around the menopause stage, though she be an active case, we must expect the tension to be higher.

In the last thirty years, I have noticed much high blood pressure, myself. I had tuberculosis, thirty-five years ago, my pulse pressure was very low, I fed on a high protein diet, ate as many as twelve eggs a day; today, I wish I could again develop a tuberculous condition, because I am seldom less than two hundred. I might balance.

We see probably more high blood pressure in tuberculosis today than we saw twenty years ago,

therefore, the fall in the systolic is more significant than the fall of the diastolic, that is, you seldom see a fall in the diastolic.

Now, the second condition is that the pathology of the lungs certainly must lead you to the conclusion, you take a fibroid lung, where the heart is pulled from cardio-pulmonary adhesions, you are going to have low tension. You take the average little girl who comes to you with acute active tuberculosis, you take a cardiac, of course, the tension is going to be lower. You take the average case of certain displacement of the mediastinum after collapse, you are going to have lower tension.

In other words, my conclusion is this, fifty per cent (looking back twenty years) of cases I have taken blood pressure showed a normal blood pressure, many of them were active tuberculosis, I mean the average young man of twenty-four, we will say, with a blood pressure of eighty-one, thirty per cent of the cases of that age have come with a blood pressure systolic under one hundred; about twenty per cent (and these cases are generally over forty) show a tension systolic, and there you have not only a rise in the systolic, but you have also a rise in the diastolic.

Chairman J. H. Musser (New Orleans): Is there any further discussion of this interesting paper of Dr. Bethea's? I want to interpolate a word or two: I remember, about twenty years ago, a little booklet brought out by Dr. Nicholson, in which he mentioned that anybody with a persistent blood pressure under one hundred and ten should be considered as having tuberculosis, and if they persisted under one hundred, they definitely had tuberculosis. Like most dogmatic statements, this is not true, but still, there is a certain element of truth in it.

Dr. Oscar W. Bethea (closing): There is practically nothing to add to my previous remarks. We do not claim that a patient with high blood pressure is immune to tuberculosis, he may acquire it; or, an individual with tuberculosis may develop some condition that will lead to hypertension, but the tendency of the disease is toward hypotension. You will remember that both Dr. Bel and Dr. Durel concurred in this contention.

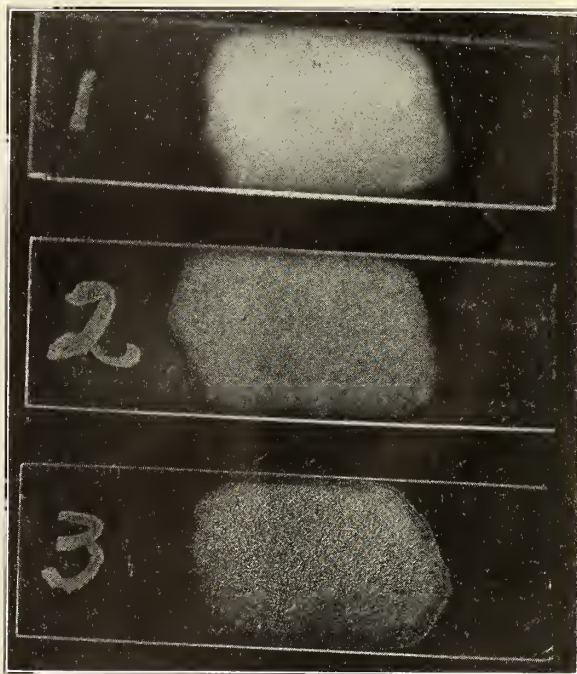
This tendency of tuberculosis to hypotension has been of distinct benefit to me in diagnosis. This has been especially the case in differentiating the disease from hyperthyroidia, associated with fever, and from certain cases of heart and kidney disease characterized by hemoptysis.

COMPARATIVE RESULTS WITH THE WASSERMANN AND PRECIPITATION TESTS.*

H. W. BUTLER, M. D.,†

NEW ORLEANS.

Many experimentors have used the flocculation principle of the Germans, and devised various tests for syphilis. Many of them carry the names of the individuals who modified the method in use. The antigens are all essentially alike, and may be changed in such a way as to be suitable to any technic desired, the object being to add specificity and simplicity to the test. The specificity resides entirely within the antigen. There are three ways by which the reaction of the test may be recognized: First, by reading the particles suspended in the fluid in a test tube; second, by reading the amount of particles after they have



THE BUTLER SLIDE—PRECIPITATION TEST.

Slide 1—Negative.

Slide 2—Positive.

Slide 3—Strongly positive.

*Read before the Orleans Parish Medical Society, May 14, 1928.

†From the Department of Medicine, Tulane University School of Medicine.

settled to the bottom of the tube after cracking an emulsion which serves as an indicator; third, by reading the precipitate on a slide. The precipitation and subsequent agglutination of the particles in the colloidal suspension is brought about by an electrical change or by some other unknown influence. We have tested three thousand blood sera in our laboratories with the assistance of Doctors Hauser and Couret of the Pathological Department of Charity Hospital, who made the work possible.

I now wish to present to you the results of these tests:

COMPARATIVE RESULTS ON BLOOD SERA USING THE
KOLMER WASSERMANN ANTIGEN AND THE
ORIGINAL MEINICKE ANTIGEN.

WASSERMANN	MEINICKE
72 Strongly positive	Strongly positive
5 Negative	Strongly positive
3 Negative	Moderately positive
8 Moderately positive	Strongly positive
6 Strongly positive	Moderately positive
1 Weakly positive	Strongly positive
4 Weakly positive	Moderately positive
1 Moderately positive	Moderately positive
2 Moderately positive	Negative
1 Weakly positive	Weakly Positive
1 Anticomplementary	Weakly Positive
2 Anticomplementary	Moderately positive
436 Negative	Negative

542

RESULTS OBTAINED WITH THE KOLMER WASSER-
MANN ANTIGEN USING IT IN BOTH TESTS.

WASSERMANN	PRECIPITATION
43 Strongly positive	Strongly positive
11 Moderately positive	Moderately positive
3 Weakly positive	Moderately positive
2 Weakly positive	Negative
1 Negative	Moderately positive
6 Moderately positive	Strongly positive
1 Weakly positive	Moderately positive
6 Weakly positive	Weakly Positive
2 Anticomplementary	Negative
2 Strongly positive	Negative
4 Anticomplementary	Strongly positive
489 Negative	Negative

570

RESULTS WITH THE VEAL HEART ANTIGEN AND
THE KOLMER WASSERMANN SYSTEM.

WASSERMANN	PRECIPITATION
186 Strongly positive	Strongly positive
1 Strongly positive	Negative
1 Weakly positive	Negative
1 Negative	Strongly positive
4 Anticomplementary	Strongly positive
1 Negative	Moderately positive
9 Moderately positive	Strongly positive
10 Weakly positive	Strongly positive
10 Negative	Weakly Positive
3 Weakly positive	Weakly Positive
3 Strongly positive	Moderately positive
5 Moderately positive	Moderately positive
2 Strongly positive	Weakly Positive
1776 Negative	Negative

2012

THE BUTLER SLIDE TEST.*

B. G. EFRON, M. D.,
AND
C. A. WEISS, M. D.†
NEW ORLEANS.

Since the publication of Kahn's test for syphilis, interest in the precipitation tests has been greatly stimulated, and in many laboratories the complement-fixation and the precipitation or flocculation reactions are being run simultaneously. Some workers have gone so far as to abandon the Wassermann in favor of the Kahn or other precipitation test. When correctly performed the Wassermann is the most accurate and constant single index of syphilis; however, it is well known that it is not a specific test for syphilis, its reaction depending not upon a specific antibody, but upon a lipoidal substance called reagen, which is present in the blood of many syphilitics. The technique of the reaction is delicate and complex and subject to error from a large number of sources. Its complexity and delicacy have led many serologists to search for an equally reliable, but technically simpler procedure.

*Read before the Orleans Parish Medical Society, May 14, 1928.
†From the Gastro-intestinal and Pathological Departments of Touro Infirmary.

During his investigation of various precipitation tests, Butler devised a simple slide test, which because of its simplicity, rapidity in performance, stability of its antigen, and its agreement when compared with the Wassermann, commends itself most highly as a procedure to be used in conjunction with this complement fixation reaction. It is our purpose in this report to describe the results on comparing the Butler with the Wassermann test.

PROCEDURE OF THE BUTLER TEST

Stock Antigen—The Butler antigen is an ether extracted acidified cholesterolized alcoholic extract of fresh baby veal heart. Details of procedure are fully described by Butler and will not be repeated here. The antigen is stable for a variable period, at least several weeks. Some antigens remain in good condition for months. When the antigen spoils a fine granular precipitate forms in the antigen-water dilution.

Antigen-Water Dilution—The antigen-water mixture which is used for performing the test is made by mixing in a dry test tube one part of stock antigen with two parts of distilled water. Care must be taken that the graduated pipette be washed out with 95 per cent alcohol before going into the stock antigen bottle. The dilution should be thoroughly mixed by alternately sucking up and forcing out the mixture, holding the tip of the pipette against the bottom of the tube. The resulting suspension should be opalescent and should not show a precipitate when rocked alone on a slide. The mixture should be made just before the test is done. Although some mixtures may remain good for an hour or more, we have found a precipitate in others at the end of twenty minutes.

Serums—These are obtained as for the Wassermann test. In this series both inactivated and non-inactivated sera were used; inactivation, however, is not necessary.

Technique of the Test—Two drops of serum are placed in the center of a scrupulously clean microscopic slide; three drops

of the antigen-water dilution are then placed next to, but not into, the serum. These are mixed thoroughly for twenty seconds with a clean tooth-pick. The spread of the fluid should be limited to an area the size of a quarter dollar. The slide is then tilted gently from side to side for the remainder of a two-minute period and then a reading is made. Positive and negative controls with known sera should be set up with each series of tests.

Reading—The test should be run during day-light. Reading is made by indirect light, sun-light or day-light from a window, looking toward the light with a black surface beneath the slide for a back-ground.

Four reactions are noted:

1. Strongly positive—heavy, flocculent white precipitate.
2. Positive—definite white precipitate.
3. Weakly positive—slight precipitate.
4. Negative—no precipitate or change from its first appearance.

The positive reactions usually occur within the first few seconds of mixing or tilting. These reactions are easily read. Particularly impressive is the strongly positive reaction, in which the homogeneous opalescence of the serum-antigen dilution gives way, usually within a few seconds, to numerous large white flakes against an almost transparent back-ground. The negative reaction usually offers no difficulty in reading. A few small flakes in a homogeneous opalescent mixture are usually discounted and are not taken into consideration; however, a weakly positive reaction is at times difficult to read and one is occasionally hard-pressed in deciding its presence or absence. Butler states “the weakly positive reaction should be disregarded for diagnostic purposes.”

Wassermann — The Wassermanns reported here are of four types of technique, each type constituting a series. One series consists of inactivated sera using acetone

insoluble antigen with incubator fixation; the second series consists of unheated sera using acetone insoluble antigen with water bath and over-night ice-box fixation; the third series consists of inactivated sera using cholesterolized antigen with water-bath and over-night ice-box fixation; and the fourth is similar to the third, except that the serum was unheated.

In this study it was found that there was agreement of the Wassermann and Butler tests in eighty-nine and nine-tenths per cent, relative agreement in six and two-tenths per cent and disagreement in three and nine-tenths per cent. Analysis of our results appear in the tables.

TABLE 3.

Five hundred and one negative Wassermann compared with Butler test.

	Tests	Percent
Agreement	454	90.6
Relative agreement	32	6.2
Total	485	96.8
Disagreement	16	3.2

Wassermann anticomplementary, 3 cases; Butler test, positive 2, negative 1.

TABLE 4.

Results of comparison of the 664 Wassermann and the Butler test.

	Tests	Percent
Agreement	597	89.9
Relative Agreement	41	6.2
Total	638	96.1
Disagreement	26	3.9

TABLE I.

	Wassermann	Butler	W. P.	Neg.	Agreement	Rel. Agreement	Disagreement
		S. P. or P.			Percent	Percent	Percent
Noguchi	68+++	59	5	4	87	7.3	5.9
Antigen	2++	2	—	—			
Inactivated	9+	4	4	1			
Sera	222—	6	12	204	91.9	5.4	2.7
Non-	39+++	35	2	2	89.7	6.2	4.1
Inactivated	1++	1	—	—			
Sera	2+	1	—	1			
	116—	4	16	96	82.7	13.9	3.4
Cholesterin-	25+++	22	1	2	88.0	4.0	8.0
ized Antigen	68—	4	—	64	94		5.9
Inactivated							
Sera							
Non-	25+++	24	—	1	96.0		4.0
Inactivated	3++	—	2	—			
Sera	5+	3	1	1			
	95—	2	3	90	94.7	3.2	2.1

Agreement=positive or negative with both methods.
Relative agreement=positive or negative Wassermann and weakly positive Butler.

TABLE 2.

One hundred and sixty-three positive Wassermans compared with the Butler test.

	Tests	Percent
Agreement	143	87.8
Relative agreement	10	6.1
Total	153	93.9
Disagreement	10	6.1

Positive reaction=+++ , ++.

COMMENT.

This study shows a remarkable degree of agreement between the Butler and the complement fixation tests. The variations in the percentages of agreement and disagreement, using different types of Wassermann's, are the results of small series rather than actual differences. Both tests should be performed, as they shed a com-

plementary light on each other. Discrepancies should be expected with any two tests in which different antigens are used. Simplicity of technique does not infer that it is so simple in the sense that any one can perform it. The Butler test should be performed by trained laboratory workers. It is a serologic reaction and as such is subject to the errors common to serology. In this respect we differ with Butler who states, "It is designed for the physician who wishes to test the serum reaction of his patient for his own information." Positive and negative controls must be done at the same time as the patient's serum is examined, because false reactions may occur and are usually false positive reactions. We have observed false positives as the result of running the antigen-water dilution into the Wright bulb on the pipette, on improper mixing of antigen and water, too long standing of the antigen-water mixture before use, and instability of the antigen. False reactions can be recognized only by the use of control sera, a procedure with which the practitioner is unlikely to be able to comply.

CONCLUSION.

The Butler slide test is to be regarded as a valuable adjunct to the laboratory diagnosis of syphilis, in consideration of its simplicity of technique, rapidity of performance, usual definite readings and high percentage of correlation with the Wassermann reaction. At this time it finds its greatest value as a check on the complement fixation test. The Butler should be done by properly trained laboratorians.

We wish to express our appreciation to Dr. Lanford for his kind advice and cooperation.

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DISCUSSION.

Dr. G. H. Hauser (New Orleans): I believe Dr. Butler is to be congratulated on the remarkable results he has gotten in this test compared with the Wassermann reactions, especially in view of the simplicity of the test, which no doubt is one of the simplest we have.

In running the series from Charity Hospital, which Dr. Butler has presented, I had occasion to look after the Wassermann reactions. Each blood when taken was put in separate tubes, one tube for the precipitations by Dr. Butler, and the other for Wassermanns at Charity Hospital, so as not to be swayed by the result of each individual worker. It was almost uncanny as to how they would tally, negative or positive, the results nearly always tallying in both tests. We used Kolmer antigen with ice-box fixation, which I believe is one of the best methods of Wassermann reaction. The weakly positive reactions were the ones that gave what little trouble we had, and I believe, in different series of Wassermann tests we will have that same trouble.

The precipitation tests are very simple, only a few reagents are necessary; laboratory animals are not necessary and we do not have to deal with anti-complementary results that often worry us when running Wassermann tests.

In regard to other precipitation tests, all have serious drawbacks. For instance, Mienicke, who uses an antigen of horse hearts. In this country it is impossible to get sufficient horse heart to supply us with antigen. The technique of running this test may be simple, but I am not quite so sure, from observing a limited number, that it does not occasionally give a positive reaction in the absence of syphilis. In other words a positive reaction on sera negative with the other reactions. We have recently had a spinal fluid, with Wassermann reaction, cell count, and globulin absolutely negative, give us a strongly positive Mienicke; the Butler tests, however, on this serum was negative, and from clinical data, I believe it was a false positive reaction in this case.

Much has been written lately of the Kahn test, especially as to its simplicity, claiming that anyone with a few reagents can run it. I do not believe you will find it so, and this opinion is borne out by the fact that recently at a meeting of the American Society of Clinical Pathologists some criticism was raised against the reaction. Dr. Kahn, himself, said that the only way we could correctly run the test, was by learning the technique in his laboratory. Certainly everyone who wishes to use the Kahn test cannot make a special trip to his laboratory to learn the technique.

The Butler test, using the veal heart antigen, is the simplest and most efficient test we have at present. I think we are going to find out that it will become a valuable adjunct to the Wassermann. I believe, however, that as the immunological basis of the test is quite different from the Wassermann test, we will not always get agreement between the two, but I believe it is the simplest of the precipitation tests and one of the best. I believe it should only be run in a well equipped laboratory, that control sera should be run concurrently and that the antigen must be properly prepared and its specificity checked frequently.

Dr. H. W. Butler (New Orleans): It is very gratifying, indeed, to note the close agreement obtained by Drs. Efron and Weiss in their series. However, this is to be expected when performed by men with such a high rate of laboratory efficiency. Agreement should be higher in bloods not inactivated than in those inactivated.

After the test had been placed into the hands of many different men, it became apparent that if the general profession was to use the test, certain features should be modified and improved. Hence, the excuse for the existence of the second slide test. For example, the life of the antigen should be lengthened. This was accomplished by reducing the cholesterol and acid contents. They also produce the non-specific precipitate which at times is confusing. Again, too much time is consumed in running a large number of bloods, each slide requiring two minutes of individual attention. Rocking the slide is not necessary in the new test. Lay it aside and wait five to fifteen minutes, or longer. These faults have all been corrected, we believe, in the new method.

Dr. C. A. Weiss (closing): I think that the doctors who have spoken before me have quite well covered the points that I might have discussed. It appears well demonstrated in that of Dr. Butler's series in which there is disagreement between the precipitation test and the complement fixation test employing the identical antigen that all variances can not be attributed to different antigenic sensitivity, but must be due, as Dr. Johns indicated, to distinctly different antibody responses, thus further advocating the simultaneous use of both tests in diagnosis.

I wish, gentlemen, on behalf of Dr. Efron and myself to thank you for your discussions on this subject.

LYMPHOSARCOMA OF THE ILEUM WITH REPORT OF A CASE.*

MARTIN O. MILLER, M. D.

NEW ORLEANS.

Briefly reviewing the literature of lymphosarcoma of the gastro-intestinal tract, it is most frequently found in the lower ileum; it may appear at any point from the stomach to and including the rectum. The proportion of lymphosarcoma of the small intestine to that of the large intestine is about 2 to 1, and the relation between carcinoma and sarcoma of the large and small intestine is about as 1 to 20.

According to Speese the fourth, third, fifth, and second decades is the order of frequency of the ages afflicted with lymphosarcoma of the ileum. The literature shows reported cases of lymphosarcoma in the small bowel and colon to be approximately 300. Kreuger gave the following statistics of 37 cases; the small intestine, 16; ileum and cecum, 1; small intestine and colon, 1; rectum, 16. As compared to carcinoma of the gastro-intestinal tract, Stengel states the combined statistics of Nothnagel, Zemmann, Muller, Bryant, and Madyl show that 6.22 per cent of all intestinal cancers occur in the small intestine. Brill, in collecting reports on 2,128 cases of intestinal cancer, found 2.3 per cent in the small intestine.

Numerous theories have been advanced as to the cause of sarcomatous growths, among which it is especially difficult to differentiate from tuberculosis or some form of infectious granuloma of the intestinal tract. The lesions often exhibit lymphocytes, plasma cells, eosinophilic cells, and necrosis, and cases in which tubercle bacilli are missing may closely resemble hyperplastic tuberculosis. Tuberculous intestinal ulcers closely associated with widespread sarcomatous lesions in mesentery and retroperitoneal nodes are described by Nothnagel and others. Thus it seems highly

*Read before the Orleans Parish Medical Society, New Orleans, January 23, 1928

probable that many cases of lymphosarcoma arise from a tubercular basis and that the process thus established progresses of its own momentum. That tuberculosis is not always the deciding factor must be granted. Ribbirt assumes that all true lymphosarcomata arise from abberant and undifferentiated cell groups and that tuberculosis often serves as the exciting factor to growth.

The question as to the rarity of carcinoma of the small intestine is perhaps best explained by Bunting who states that the small intestine from the entrance of the common duct into the duodenum to Meckel's diverticulum in the lower ileum is a simple, unbranched tube, without variation in its type of lining epithelium, without sharp bends, without diverticula and containing, as a rule, in health, semi-fluid, mechanically non-irritating material. That carcinomata are most prone to arise where there are changes in the type of lining epithelium and at points where the surface is most liable to mechanical irritation, and in which the new growth has originated at a point where peritoneal adhesions have interfered with the normal action of the intestines.

HISTO-PATHOLOGY.

According to Ewing, the earliest stages of lymphosarcoma appear as a localized thickening of the submucosa with or without ulceration. The process extends laterally and invades and destroys the muscular layers and appear as a subserous tumor which soon forms adhesions. The early involvement of the muscularis produces paralysis of the bowel with the production of dilatation by gas and feces. The intestinal dilatation is an especial, although not constant, attendant phenomenon of lymphosarcoma of the intestine. Large polypoid growths protruding into the widened lumen without ulceration are also observed. Metastases appear early in regional nodes and they may extend into many other organs. Extension of the process in the early stages appears to be exclusively by

way of the lymphatics, but in many advanced cases true metastatic growths form in the lungs, brain, kidneys, skin and other organs, which are satisfactorily explained only by invasion of the blood vessels.

SYMPTOMATOLOGY

Unfortunately there is no definite train of symptoms referable to lymphosarcoma of the ileum. Among the most common are those of a chronic enteritis, indefinite abdominal pain, dyspepsia, irregular stools, alternate constipation and diarrhea. A rapid loss of weight and strength is nearly always evidenced. Ascites and edema are rare. There may be a more or less constant moderate elevation of the temperature. Pain, usually epigastric, and abdominal distention are perhaps the most prominent symptoms. The abdominal distention may be due to one or more of the following conditions and may occur suddenly—intestinal perforation; tympanites; peritoneal involvement; circulatory embarrassment from pressure upon vessels; or the tumor growth itself. Effusions, either hemorrhagic, purulent or clear, may also give rise to abdominal distention in association with lymphosarcoma of the ileum. The tumor mass, as a rule moderately hard in consistency, is movable. Palpation of the tumor mass does not as a rule elicit tenderness. Blood findings and other laboratory findings are not characteristic.

DIAGNOSIS.

Palpation of a movable tumor together with the subjective and objective symptoms mentioned above, with or without blood in the stool, is sufficient evidence upon which to base a tentative diagnosis. More frequently the recognition comes at the autopsy table. Early exploratory laparotomy is indicated in cases in which this condition is suspected and it is then that a positive diagnosis can be made. Roentgen-ray findings may or may not be of assistance in the recognition of the disease.

DIFFERENTIAL DIAGNOSIS.

From lymphosarcoma of the mesentery—the patient may as a rule be free from intestinal and gastric disturbances, however nausea and constipation may be present.

From other forms of lymphoma—by its local destructive capacity and by the formation of true metastases in distant organs.

From carcinomata—obstruction of the intestinal lumen is uncommon in lymphosarcoma, whereas a large majority of carcinomatous growths give rise to obstruction of the lumen. A stenosis of the lumen from lymphosarcoma when present is hardly ever due to cicatricial contraction such as is seen in carcinomas, but is usually caused by a growth in the mesentery. A small pedunculated growth may give rise to intussusception and secondary obstructions. The cachexia and anemia are more marked and more rapidly progressive with lymphosarcoma and the wasting is more marked. The course of carcinoma is slow; that of lymphosarcoma rapid. Metastasis and lymphatic involvement occur late in carcinoma. W. J. Mayo believes that in less than one-half of the cases dying from intestinal carcinoma show lymphatic involvement. In many cases enlarged lymphatic glands in the mesentery draining the involved section show no signs of malignant changes. The lymphosarcoma is as a rule larger, less circumscribed and less freely movable. In patients with suspicious signs, suspect lymphosarcoma where the patient is under 15; carcinoma when over 40. Hemorrhage is less common in lymphosarcoma. A differential diagnosis is often impossible without operation.

Sarcoma of the kidneys, ovarian tumors and cysts, neoplasms of the bladder and prostate, retroperitoneal sarcoma, and appendicitis with or without peritonitis, tuberculous peritonitis, tuberculosis of the mesenteric glands may require consideration.

COMPLICATIONS.

The tumor may compress the vena-cava, the biliary passages, the ductus pancreaticus,

or the ureter. Ulceration when present may lead to perforation either through the intestinal loop or into the abdominal cavity.

PROGNOSIS.

The mortality in these cases is high because they are not seen early enough by the physician. Even if operable, the mortality is high; death usually follows peritonitis, or death may be due to shock following the operation, because of the extensive resection required to eradicate the growth with its glandular involvement. According to Baltzar the duration is from $\frac{1}{2}$ month to 21 months, most of the cases dying within 9 months. The prognosis is inevitably death. So far as the end results are concerned, surgical intervention yields but poor results because of the facts already mentioned. Libman warns against operation cases with extensive metastases, even for the purpose of exploration, since the fatal results may be hastened in that way.

TREATMENT.

The treatment of choice is operation—resection of the bowel with all the associated glands, with anastomosis of the bowel. In cases with extensive involvement of the glands, anastomosis around the lesions is the procedure of choice.

Authorities recommend roentgen-ray, radium and Colle's toxin.

Regardless of procedure, recurrence is almost certain.

CASE REPORT.

G. C., a white male, aged 7 years was admitted to Charity Hospital Jan. 6, 1928. The family and past history were negative. This patient gave no history of ever being ill prior to Jan. 1, 1928. On that date, about 10 A. M., the child stated that he was taken with a severe pain in the left lower abdominal quadrant. He described the pain as sharp in character which lasted about two hours, forcing him to bed. No physician was called to see him at this time. A purgative was given with good bowel movement. There was no nausea or vomiting. The patient was allowed to be up and about after about 4 hours, and did not experience any more pain until Jan. 4, when he again had a similar pain but not quite so severe as the first one. He vomited once that day. The following day the mother noticed a swelling in the left ab-

domen and she immediately called in a physician, who advised removing him to a hospital. The next day he was brought to the Charity Hospital, this being 6 days after the initial symptoms. There was no bloody stool, bowels moved daily. Physical examination showed a well-nourished white individual, apparently 7 years of age, who was in severe pain. Head, neck, and chest were negative, no glandular enlargement, no swelling of the feet or edema. The abdomen was moderately distended, with a visible mass just below the umbilicus on the left side; the superficial veins in front and side of the abdomen were not prominent. The abdomen was thin-walled, and the liver and spleen were not palpable, the presence of free fluid not determined. The tumor mass was about 6 inches in length and 2 inches in diameter, freely movable, and apparently painless on manipulation. The mass was thought to be an intussusception. Pulse and temperature were normal. Examinations of the urine and stools were negative. Blood examination showed the white blood cells to be 10,750, of which polymorphonuclears were 81 per cent, small mononuclears 16 per cent, and large mononuclears 3 per cent. Scant results were obtained from flushes and enemas. Permission was granted for an operation. Under ether anesthesia a left rectus incision was made. No free fluid was found in the peritoneal cavity. The peritoneum was normal. The omentum was bound to and enclosed the tumor mass which was freed between clamps and ligated. The ileum was constricted and twisted upon itself which was caused by the large tumor mass together with extension into the mesentery. The entire mass was about the size of an orange. The involvement of the mass was located about 24 inches from the ileo-cecal valve. In addition to the intestinal and mesenteric involvement there were numerous adjacent palpable glands. Other organs were not involved. Since the general condition of the patient was good, it was decided to do a resection, extirpating all the glands, and an end to end anastomosis using a Murphy button. The abdomen was closed in tiers with drainage. The time required for the operation was one hour and ten minutes.

The pathological description of the tumor as given by Dr. H. G. Hauser is as follows: This specimen consists of a portion of the small intestine, approximately 2 feet in length, and an associated tumor mass involving the mesentery, and the mid-portion of the longitudinal extent of the intestine. The extremities of the gut appear uninvolved, excepting for a considerable congestion in the serous coat. The tumor involves a portion of the intestine about 9 inches in length. There is a dense infiltration of the wall which is hard and nodular and which has occluded the lumen of the intestine at this point. On section, the substance of the tumor is quite firm, yellowish-white in ap-

pearance. The portion found in the mesentery has an almost gelatinous consistency. It is poorly encapsulated and appears to be infiltrating the neighboring structure. Microscopic diagnosis is lympho-sarcoma.

The patient was somewhat shocked when returned to the ward. An infusion of 700 c.c. of normal saline was given immediately along with stimulants. The pulse grew weaker, but the patient awakened from the anesthesia and was able to talk. A transfusion of 300 c.c. of blood was given. In spite of this the patient suddenly took for the worse and died two hours later.

DISCUSSION.

Dr. Alton Ochsner (New Orleans): Dr. Miller's review of the literature has been so thorough that there is not a great deal to be said. It is interesting, however, to note that two cases of this unusual condition have been observed in Charity Hospital in a period of three years and reported within that time, the other case reported by Dr. Loria two and a half years ago.

Possibly one of the reasons why some of these cases are diagnosed late can be understood when we realize there is no obstruction but an early invasion of the musculature so that a dilatation is a primary condition rather than stenosis. In other forms of malignancy in the intestine, fortunately, stenosis is an early occurrence. In the lymphosarcoma, especially due to the involvement of the muscular layers, dilatation is a primary factor; later, as the growth progresses, stenosis sets in. It is interesting to note also that the growth extension is around the gut involving the layers of the gut, seldom the peritoneum; the peritoneum is involved later. These cases ulcerate late, which accounts for the lack of blood and other findings in the feces.

The mortality Dr. Miller gives is extremely high because of the fact that the cases are not diagnosed, and reviewing the cases in the literature I was unable to find any cases in which a satisfactory result was obtained if the patient recovered from the operation. No doubt lymphosarcoma occurs more frequently than we think at the present time. If more cases were reported we might have a better idea of the proper incidence of the condition.

Dr. F. L. Loria (New Orleans): About three years ago I had occasion to study the literature on this subject—after having come across a case in the Charity Hospital, while I was there as an interne. The subject interested me so much that I thought I would look up the literature to see what could be found. At this time I collected 115 cases to which I added the one I reported. These 116 cases I studied statistically from many angles. However, the points of interest to me were; first,

the age incidence of the disease, secondly the portion of the intestinal tract most frequently affected, and thirdly, the types of sarcoma that might affect the gastro-intestinal tract, and noting the type or types which predominated.

To begin with I noticed that while carcinoma is essentially a disease affecting the large intestine, sarcoma affected the small intestine more frequently. The proportion of sarcoma to carcinoma in this region was 3 to 1. However, the proportion of carcinoma to sarcoma, in the gastro-intestinal tract, is about 6 to 1. There can be no doubt that primary sarcoma of the bowel is a rare condition, but a few men believe the disease is perhaps somewhat more frequent than the figures would lead one to think.

The greatest number of these cases are found between the ages of 20 and 40 years, the next greatest number up to the tenth year. Thus, as in sarcoma involving other structures of the body, that involving the gastro-intestinal tract is also found in the early years of life. Carcinoma is, on the other hand, found in the later years of life.

In the group collected the small intestine predominated in the number of times it was found affected. The ileum was the seat of the disease in the greatest number of cases. The jejunum and duodenum came in order. The number involving the large intestine has been relatively smaller. However, the ileo-caecal region was found frequently affected.

Seventy-eight per cent of the cases I collected were of the round-cell and lymphosarcoma type. Of these the round-cell type predominated slightly. The remaining 22 per cent included spindle-cell sarcoma, melano-sarcoma, mydosarcoma, etc.

In my report, at that time, I included those growths found in the gastro-intestinal tract between pylorus and rectum and excluding these two latter structures.

EFFECT OF MORPHIN ON FUNCTION OF NORMAL AND PATHOLOGIC KIDNEY—

The work reported on by Sisk and Beyer, was undertaken primarily for the purpose of determining the safety of administering morphin sulphate in quantities sufficient to insure comfort to patients who had been subject to operations on organs of the genito-urinary tract, and who had some impairment of the kidney function. The results were sufficiently constant to justify the following conclusions: 1. Morphin sulphate, given in the usual therapeutic dose and repeated every four to six hours until the patient develops toxic symptoms does not impair the function of the normal kidney. 2. Urologic surgical patients may be given morphin sulphate in the usual therapeutic doses without fear of impairment of renal function.—J. A. M. A., 90:2082, 1928.

EXTENSIVE OSTEOMYELITIS WITH MASSIVE RESECTION.*

OCTAVE CHARLES CASSEGRAIN, M. D.,†

NEW ORLEANS.

Osteomyelitis, up to the present writing, has furnished one of the sad chapters in the history of Medicine. That it has furnished a chapter, fraught with interest, however, no one who has read some of the voluminous literature written on the subject, will deny. Chiefly, from the technical standpoint, the so-called chronic cases have had the greater interest for me. This is so for two reasons:

1. The true acute hematogenous osteomyelitis is unfortunately seen much less frequently by the surgeon than the chronic types.

2. The chronic cases with their large sequestrum, their extensive degree of bone involvement, their prolonged duration both before and after treatment, are cases which present real problems of judgment, decision, technique and on whose correct solution depends to a great degree, the economic, mental and physiological welfare of the patient.

I admit readily that chronic osteomyelitis should not exist, that if the early cases were properly diagnosed and treated the incidence of chronic osteomyelitis would be greatly lowered, if not altogether abolished.

I earnestly believe that by repeatedly pounding into our undergraduates and young practitioners the early signs and symptoms of acute osteomyelitis and its early treatment, we shall in time succeed just as we have succeeded in teaching them to recognize acute appendicitis, and not to purge routinely every acute case of abdominal ache! And just as we have succeeded in teaching them to appreciate and recognize the early signs of uterine malignancy.

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†From the Department of Surgery, Tulane University.

As a great preacher once said, however, "Errare humanum est," and while preaching and teaching the recognition of acute osteomyelitis, it is well indeed for us to acknowledge that to err is human; that our campaign of education has not yet borne full fruition, that chronic osteomyelitis is still too frequently seen, and since these conditions exist consider the remedy.

It is not the purpose of this paper to review the etiology, diagnosis and treatment of acute osteomyelitis. This has been done repeatedly and ably in this Society by my former teachers, Drs. Matas, Gessner, Cohn, Maes, Fenner and others. My purpose is rather to again bring out the difficulties of early diagnosis, the reason the diagnosis is so often missed, and then describe two cases of extensive bone involvement in which conservative radicalism, if you will allow me such an expression, was used with complete success.

Back in 1921, in discussing a paper on the early diagnosis and treatment of osteomyelitis presented before this body by Isidore Cohn, Professor Matas said the following. I am now quoting him almost literally:

"That the diagnosis of acute osteomyelitis in its incipency is fraught with perplexities is only too well proven by the large number of cases that come to operation long after the destruction of the bone and irreparable damage have occurred. The most frequent source of error lies, no doubt, in the confusion of a primary epiphyseal infection in close proximity to the joint on the one hand and acute infection of the joint itself, as most often occurs in acute inflammatory rheumatism on the other. A careful examination, however, will demonstrate that the area of greatest tenderness and pain on pressure is not in the joint, but outside of it, and that the pain and tenderness in osteomyelitis radiate away from the joint and not towards it, and furthermore, that in arthritis the infection is usually polyarticular. There are other conditions that may simulate acute osteomyelitis, especially in children who are the chief vic-

tims, namely, infantile scurvy, gonorrheal arthritis, acute arthritis deformans, and in one of my cases cellulitis."

"From all this, it is easy to understand that reasonable confusion and doubt should often arise even among experienced men and that practitioners often prefer to test the diagnosis therapeutically rather than surgically. It is easier to try drugs before deciding upon an operation. This test of the diagnosis is often spoken of as giving the patient the benefit of the doubt, when in reality giving the patient a real benefit of the doubt would be a prompt exploration."

How timely, then, these words of the old master, spoken with all the wisdom of his vast experience, and how timely now. How closely does he demonstrate his knowledge of human nature when he speaks of finding it the easier way to give the patient "the benefit of the doubt," a benefit which I doubt not is often insisted on by both parents and patients and to which the practitioners agree reluctantly instead of forcefully insisting for exploration.

And this business of giving the patient the benefit of the doubt, is still being practiced today, less and less it is true from year to year, but still too often to be reassuring. For when one realizes that some of these patients suffering with chronic osteomyelitis remain at times for months under the physician's care, that from the time of onset until the time of discharge periods as long as twelve months may elapse and several operations performed; I recall a case where five distinct osteotomies were done, that deformities at times tremendously crippling may persist, one is appalled at the quality of this disease which exacts such heavy toll from its victims, and stimulated to greater efforts to lessen its morbidity.

And here I wish to state most emphatically that whereas in the acute cases all that is needed is to explore promptly, relieving periosteal tension, then drilling one or more

openings in the bone to release the pent up infection, in the chronic cases and especially those involving the long bones, one must not be satisfied with simply removing the necrosed fragments. The danger here lies, not in the removing too much bone, but always in not removing enough. The timidity of the operators is responsible for the repeated operations and the long periods of disability which these unfortunate sufferers have to undergo. They are in their pitiable state:

1. Because the original operation was too long delayed, and,

2. When they are finally operated, the operation is not extensive enough to fully meet the requirements.

In my practice I have now made it a rule not only to remove all the dead bone I am able to demonstrate as dead, but to go well into the healthy bone and remove as much of it as I have the nerve to do.

In both of the cases I wish to report tonight, very nearly the entire shaft of the bone was involved, and because of this extensive bone involvement a complete subperiosteal excision performed so as to be sure of not leaving any part of the diseased bone.

Case 1. M. D., white male, aged 17 years, stenographer, was admitted to Hotel Dieu January 4, 1925, complaining of a running sore over the right collar bone.

Present Illness: Five and a half months ago, one afternoon, he was taken suddenly ill with chills, high fever and extreme pain in the right side of his neck just above the collar bone. The day before he had played baseball nearly all day, under a hot sun, and had been struck in the neck by a foul ball. Six days after the onset of the trouble a large abscess of the neck was incised and drained. He left the hospital in nine days and he had felt fairly well since his discharge, except that the wound would not heal, has been draining ever since and that on two occasions small particles of bone escaped from the wound.

Family history is negative. Past history: Usual diseases of childhood—pneumonia at 4 years—appendix removed 1½ years ago—tonsils removed 4 years ago. Five months ago had a large

abscess in the neck drained. Cultures made in the Presbyterian Hospital at that time showed infection to have been due to the staphylococcus aureus. Habits and Venereal History: Negative.

Physical Examination: Thoroughly negative except for evidences of an old McBurney scar and a small sinus over the center of the right clavicle.

Laboratory Findings: Urine—Wassermann—and total count showed nothing abnormal. The roentgen-ray report described an osteomyelitis of the entire right clavicle.

The day following his admission, January 5, under local anesthesia—½ per cent novocain with 6 minims of adrenalin to the ounce added—an incision was made over the right clavicle down to and through the periosteum, which was found much thickened. Periosteum peeled back with periostetome and the clavicle sawed through the center with a Gigli saw. Both halves were then dissected and freed from their attachment to the sternum and acromion respectively and removed. Iodoform pack inserted and incision closed with chromic No. 2 catgut and silkworm gut.

From Jan. 5 to Jan. 13 when he was discharged patient had an uneventful convalescence, temperature rising to 100°F the day after his operation but coming down to normal the following day and remaining down to normal thereafter. He was discharged from the hospital eight days after his operation, and from the office sixteen days later, healed.

There were several interesting facts about the case:

1. The clavicle, the bone affected, is one of the rarer bones to become involved in osteomyelitis. Evarts Graham states that at St. Mary's Hospital for children in New York from 1914 to 1924 only one case of acute osteomyelitis of the clavicle is recorded, and the same author quoting Gau of Lexington, states that in 58 cases there were only 4 involving the clavicle.

2. Trauma, contrary to the common rules, seems to have played an important part as a causative factor in this case.

3. This resection of the clavicle, which was the first one I had done, is easily performed under local.

4. By removing all of the diseased bone, and in this case none could have been left behind, the patient's stay in the Hospital

was limited to eight days and his total post-operative period of disability limited to twenty-four days.

5. Contrary to accepted teachings, the clavicle does not seem to be an essential bone in preserving the physiology of the shoulder joint. Certainly in my case, there was no apparent deformity, no drooping of the shoulder, no loss of contour and no limitation of motion long before the bone had regenerated.

Case 2. Freddie Jackson, aged 5 years, colored male, was admitted to the Charity Hospital on the afternoon of May 8, 1927, complaining of fever and a swollen leg. Present Illness: Began 6 days ago when the patient first began to complain of headache. At this time his mother noticed that he felt feverish. The next day he began to complain of pain in his leg, and the leg began to swell. His right eyelid also began to swell at this time and gradually increased until the eye became closed. The swelling in the leg and the fever increased day by day, so the mother brought him to the hospital. Past History: Irrelevant. Physical Examination: A well developed and nourished negro child lying in bed apparently very ill. The right eyelid is completely closed and there is a discharge of pus between the lids. There are some crusts present in the nose and an exudate on the posterior pharyngeal wall involving the tonsils. The pharynx is markedly congested. Outside of a rapid heart, examination of the chest is negative. Examination of abdomen is unsatisfactory due to a marked rigidity of the abdominal muscles. Genitalia negative. Extremities: The right leg is enormously swollen and shiny. It is very tender on palpation and an area of fluctuation is found on the right lateral aspect 4 inches above the ankle. There is an area of denuded skin surface over external malleolus and a large unruptured bulla. Reflexes are present. Temperature on admission 103°F by axilla. Pulse 128, respiration 28.

Laboratory Examination: Blood 21,500—neutrophils 88 per cent. Urine negative. Throat and nose cultures—negative for diphtheria. Smear from the eye showed pus cells and gram positive cocci.

Skiagraph of the leg taken on admission was negative for fracture. Skiagraph of the sinuses taken on admission showed an opacity of the right maxillary sinus.

First Operation: Morning after admission.

Under ethylene gas anesthesia an incision was made on the external, lateral surface of the right

leg about 4 inches above the ankle, at the site of fluctuation. Pus poured out freely from the soft structures, so multiple incisions over entire leg were made and four Dakin tubes inserted.

Pus sent to Pathological Department. Cultures: *Staphylococcus aureus*.

This little boy on admission had, besides the infection of his leg, a severe infection of the face and sinuses. The denuded area over the malleolus, the unruptured bulla, the extensive cellulitis present 6 days after the onset of his illness masked at first the true nature of his trouble. He was so sick moreover, that there was no opportunity to explore the bones at the operation. The problem was to get in, evacuate the pus and get out as quickly as possible.

Two days after his operation he was seen in consultation by Dr. John Irwin, who reported that he had pus in the middle meatus and that his anterior group of sinuses were involved, and outlined the necessary treatment.

Following his operation the temperature did not drop as I had expected.

From May 8, the day of his admission, until May 29 he ran a septic temperature fluctuating from 99-2/5°F to 105°F, the lowest maximum daily temperature during this time being 102.5°F.

On May 27 another skiagraph showed: Necrotic area in upper 1/3 of fibula and apparently in lower 1/3 with considerable tumefaction of the soft parts. Dressings obscure view.

Another picture taken 12 days later to see if the necrotic process had increased showed no change, so on the following day, June 9, the boy was subjected to his second operation, as follows:

The incision was made on the external side of the leg to explore fibula. The periosteum covering the upper and lower third of the fibula was found markedly thickened and inflamed and the surrounding tissues necrotic. All necrotic tissue was removed with knife, curette and cautery. Two small openings were made at both extremities of shaft. Wound was packed with iodoform gauze and left wide open.

Following his operation the temperature remained elevated for two days. By June 13, four days later, it had dropped to 99.5°F, and from then until July 23, when he was subjected to his last operation, it fluctuated between normal and 100°F, twice going to 101°F.

On July 15 a last picture taken showed an osteomyelitis involving the entire shaft of the fibula.

So on July 23 the fibula was exposed under ethylene anesthesia. Periosteum incised and a sub-periosteal excision of fibula done by first dividing the bone through its center, and then removing each half separately. Because of the long standing infection, and the present condition of the tissues, wound was left wide open and packed with iodoform gauze.

Temperature rose for two days following operation, then gradually dropped, and from July 29, six days after operation, to August 15, the day of his discharge, it remained normal. He was dressed three times a week at my Clinic from August 15 to September 21, at which time he was discharged completely healed. The second case demonstrates thoroughly some of the difficulties that beset the practitioner in arriving at a diagnosis, and the both cases I am sure proved that the period of disability following operation can be materially shortened by boldly making certain that no diseased bone is left behind.

The follow up on both cases has been extremely satisfactory. At my request the little colored boy came to my Clinic two weeks ago to be examined. There is no deformity and no functional deficiency of the operated leg. He was able to stand on the leg and skip and jump at will. Palpation revealed the presence of a new fibula and to confirm this physical finding a skiagraph was made, which, as you see, shows the fibula regenerated.

The first case has proven to be equally satisfactory. About a year and a half after his discharge, examination both physically and by the roentgen-ray showed the clavicle regenerated, and absolute normal function of the arm and shoulder of the operated side.

Conclusion: Let me emphasize this point. The best way to treat osteomyelitis is to recognize the early signs of the disease and by prompt drainage, avoid the actual destruction of the bone; for when this destruction has once occurred the surgeon has to face a battle which will at times tax his patience, resourcefulness and daring to the utmost.

DISCUSSION.

Dr. Alton Ochsner (New Orleans): Dr. Cassegrain's paper is especially interesting because of the type of case reported.

The treatment of osteomyelitis is surgical and surgery is indicated immediately. Murphy has once said "that the expectant treatment of acute osteomyelitis consists of expectant "mortis."

Another thing I wish to emphasize is, however, massive resection of bone in osteomyelitis should not be done on those bones in which weight-bearing is a factor. Beye, of Iowa, reported five cases, in some three hundred cases. Of these cases, in four in which massive resection was done in the tibia, lack of regeneration occurred in all; regeneration occurred only in the one femur case.

I had the opportunity of seeing four cases in the Schmeiden's Clinic. It happened in these four cases the tibia was involved, massive resection was done and in three cases no sign of regeneration was apparent after four years.

The treatment of osteomyelitis in weight-bearing bones should be conservative. There is too much danger of infection especially in lifting the periosteum so that the resultant infection may destroy the chances of regeneration.

Dr. E. D. Fenner (New Orleans): I cannot keep still after hearing a paper on osteomyelitis, because those of us who have had to deal largely with the surgery of children, know that osteomyelitis is a most common and horribly mutilating and frequently fatal disease.

We all know that osteomyelitis of the clavicle is a rare condition in comparison to osteomyelitis of other bones—a blow from a **foul** ball might explain a **rotten** bone, even here.

I want to say that while it is true that the destructive effect of osteomyelitis is less likely the earlier treatment is instituted, it is not a fact that immediate treatment will always prevent disastrous results. I have in mind two or three cases in whom infection had not existed for more than 36 hours, and for one of whom I got special permission on Sunday to operate in the emergency room of the Hospital clinic, in the hope that I might arrest the progress of the disease. An emergency roentgenogram showed no sign of infection. We operated in an effort to save the femur, but the infection extended and involved both hip joints and the tibia in one limb. The patient did recover, but after months of desperate struggle. It was not due to any failure on our part in instituting treatment.

While you certainly cannot operate too soon, that does not absolutely protect the patient from a spread of the process. It certainly improves his chances of having the infection arrested.

D. O. C. Cassegrain (closing): First, I wish to thank the gentlemen who have discussed my paper. The experience of Dr. Fenner proves all too

clearly what a serious disease osteomyelitis is. In his case the necessary steps were taken early for the eradication of the disease, and yet, early as he was, he was too late and the process went on and infection spread. Lessons such as these should make us all more alive and careful in our diagnosis.

The value of early diagnosis and early treatment we cannot over emphasize. We all have our failures, but I am convinced that by following the routine of early diagnosis and early exploration we will reduce our failures to a minimum and will be well rewarded in the long run.

Dr. Ochsner brought out a point about massive resection in weight-bearing bones. In this type of case we should hesitate in performing a massive resection. The only excuse for doing massive resection is to shorten the period of the disease. Now if a patient will have to wear orthopedic appliances or be kept in bed for a prolonged period of time as would necessarily be the case if a major weight-bearing bone was excised, the very purpose of the operation might be defeated. Massive resection is applicable chiefly to those bones which do not carry the major portion of the body weight for the chief purpose of lessening the period of disability. When these bones are not involved it is probably the operation of choice.

Osteomyelitis is a very serious disease. It is very difficult to control, and before embarking on an operation the case should be studied thoroughly and the advantages and disadvantages of any operative procedure worked out very carefully.

HEALTH AUDITS—Other items in the list of physical impairments found are merely suggestive. Sixteen per cent of the clients had flat feet, seventeen per cent had frequent colds, twenty-two per cent had deflected nasal septa, forty-one per cent had heavy dentistry, eight per cent had varicocele, and ten per cent had chronic skin affections, such as acne. This seems strange material with which to do life extending. Men have died and worms have eaten them, but not from flat feet.—Clendening, Logan: *American Mercury*, 15:145, 1928.

THE IMPORTANCE OF PARA-NASAL SINUS DISEASE IN GENERAL DIAGNOSIS.*

G. M. STREET, M. D.,

VICKSBURG, MISS.

This may seem an unusual subject for a general surgeon to bring before this section. But all general surgeons are called upon at all times to make diagnosis in almost every type of case, especially the puzzling ones, and as we all wish to analyze our cases in such a manner as to overlook as little pathology as possible, I am impelled to branch a little out of the way of our usual discussions and bring to your attention a field which I am inclined to believe has been sadly neglected by many of us in the past and at present.

In this day of many specialties, there is a growing tendency for each specialist more and more to confine his thought solely to his particular field of the human organism and fail to consider first the patient as a whole. There must be some one in the field of medicine that can undertake the problem of diagnosis with an unbiased line of thought, and, in my opinion, the general surgeon should be one of those who does so.

None of us derive any satisfaction from having our cases return after operation with the same headaches and backaches they had before we did a most perfect pelvic or abdominal operation, and on second survey possibly find an old chronic paranasal sinus disease to be causing most of the symptoms present at the first examination. Neither are we pleased when we have removed a suspicious gall bladder and appendix for relief of some digestive disorder to have the patient continue to complain of the same symptoms until we finally discover a focus of infection in the sinuses or tonsils, and have the patient get relief when proper treatment is given.

*Read before the Mississippi State Medical Association, Meridian, May 8-10, 1928.

Yet we have had these very things happen, and each time we are more impressed. We are not disparaging abdominal and pelvic or any other kind of general surgery, but we do believe that we should examine surgical cases more carefully from every angle. When we find infected sinuses, tonsils or teeth, and still believe a general surgical procedure is indicated, this surgery should be done, but the patient should be informed of the other conditions existing and impressed as to the necessity of having them treated in the future.

The object of this discussion is to emphasize a few important points concerning para-nasal sinus disease by illustrative cases and to bring more forcibly to your attention the great need for the treatment of cases with real pathology in the nasal sinuses.

The multiplicity of symptoms confronting the earliest workers was confusing, and only of late have detailed pathological studies made clear the cause of this perplexing problem.

But fifteen years ago when I finished medical school and hospital, the consideration of pathology in the nasal passages was practically restricted to the symptomatology and treatment of acute conditions, such as acute blocking of the frontal sinus, abscess of the maxillary antrum, obstruction by nasal polyps, deviation of the septum, etc. We were never told of the remote symptoms which constantly arise from chronic disease in the sinuses, of the many and complex reflex disturbances which can arise from this source with few direct symptoms to give the diagnostician a clue as to the real source of the disturbance. As a focus of infection in the production of arthritis and other clinical pictures of chronic sepsis, the sinuses were barely mentioned. Whether sinus disease existed at that time to the extent it does today, I am not prepared to state, but from personal observation I am convinced that the number of cases has very much more than

doubled since the beginning of the influenza epidemic in 1918.

One hears the statement very often that sinus disease is a fad, that very few are benefitted by sinus operation; that every case that goes to the rhinologist is reported by him to have sinus disease. There is much truth in these statements, and the chief reasons for the sinus operation having such a reputation are: first, operations having been done on cases where it was not needed; second, improper or insufficient post-operative care and follow-up treatment; and third, lack of complete diagnosis before operation and the presence of unrecognized pathology elsewhere.

In a review of all cases of sinus surgery done in our clinic in the past several years, we find the group of cases showing the highest percentage of cures from the sinus operation are those in which the diagnosis of sinus disease was made or suspected by the general surgeon in charge of the case, and who referred the case to the rhinologist for treatment. The group of cases having the largest number of poor results are those who had gone directly to the rhinologist for treatment without first having had a careful and thorough general diagnosis.

I am convinced that far too many general practitioners and surgeons are not on the alert for symptoms of sinus disease, and pay too little attention to the nose and throat, thus overlooking many cases that could get prompt relief from distressing symptoms by conservative sinus surgery. And these cases often are treated for years without results because their symptoms are wrongly attributed to other causes. I am also convinced that an equal number of cases are operated on by the rhinologist for symptoms attributed to sinus disease, but which are due to other causes.

In order to correct these errors, as far as possible, it is essential for the specialist to work in co-operation with the general surgeon and with the internist. Hardly any case should be operated on until after

a careful and thorough general diagnosis has been made.

There are many places in the body in which chronic infection may be hidden: the tonsils, teeth and gums, para-nasal sinuses, prostate, cervix uteri, gall bladder, appendix, rectum, etc. Any one or more of these locations may be the source of absorption of infection or toxins. We feel that every case presenting clinical evidence of focal sepsis should have the benefit of careful investigation of all of the common locations for chronic septic processes. The finding of one source of infection does not mean that there are not other foci, and all should be considered before a complete diagnosis is made.

With the limited time at my disposal, instead of going into a detailed discussion of symptoms, I shall briefly give the histories of a few selected cases that illustrate some of the symptoms and the importance of finding and treating cases with chronic disease in the para-nasal sinuses.

Case 1. This case represents an oversight on the part of the writer as well as many other reputable surgeons and diagnosticians into whose care she came before the chief source of her trouble was found. Mrs. F. C. H., age 28 years, was first examined in 1920, at which time the chief complaint was general nervousness, insomnia, soreness and stiffness of the muscles and joints, frequent attacks of headaches and sore throat, and occasionally a little fever. General examination showed hypertrophy and chronic inflammation of both tonsils, two abscessed dead teeth, and a chronic endocervicitis. She was advised to have the infected teeth and tonsils removed, and to have cautery treatment of the cervix. The case was not seen again for four years, and the history during this time is interesting. Shortly after the initial examination the dead teeth were extracted and then the tonsils were removed. Not the slightest relief was obtained. A few months later she was seen by another physician, who did a dilatation and curetage and cauterized the cervix. A few months later she had obtained no relief, the nervous symptoms had increased, she could not sleep, her joints were beginning to swell and becoming more painful. Her neurotic symptoms became so marked and her mental symptoms so pronounced that a definite psychosis was diagnosed and she was committed to an insane asylum, where she remained eleven months. During that

time the mental symptoms gradually improved, but the arthritis grew steadily worse and she was sent home. After having been at home and most of the time in bed for almost a year, she again came into the writer's service. The patient was practically bed-ridden, the knees, ankles, wrists, fingers, and elbows were swollen, tender, and extremely painful. She was admitted to the hospital in August, 1924, and a careful general survey made. The only positive findings aside from the arthritis was a large boggy uterus, a large soft cervix and a persistent muco-purulent vaginal discharge. Blood culture was negative as well as were the results of all routine laboratory procedures. The uterus and cervix was thought at that time to be the focus of infection and a total hysterectomy was done. The patient made an uneventful recovery from the operation and was followed for over six months on various forms of medical treatment. No relief of symptoms was obtained from either the operation or treatment. The patient at this time was having considerable digestive disturbance, occasional attacks of colic with slight icterus, and I was about ready to attack the gall bladder as the source of infection, although at the time of operation the gall bladder felt normal to palpation. In the course of a general examination at this time, I noted a slight post nasal dripping and a deviated nasal septum. A roentgenogram of the sinuses was ordered and there was found definite evidence of disease in the ethmoidal region. The patient was then referred to the rhinologist on our staff, who operated on the sinuses. The results were almost immediate and would have been difficult for me to believe had she not been under my own observation. Within one week the swelling of the joints was reduced over fifty per cent and steady improvement followed. Today, nearly two years following the sinus operation, this patient is entirely free of all active symptoms. There is a slight limitation of motion in the elbows and some stiffness in the ankles as a result of the prolonged arthritis. The patient is free of all pain, sleeps well, does her own housework, drives her car, and is a most grateful and satisfied woman. This illustrates in a striking manner the fact that one patient can have numerous foci of infection and not get results from treatment until every focus has been eradicated. Had we studied this case in the beginning, as we study our cases today, this sinus condition would have been noted and treatment given long before it was, and probably have relieved her of several years of suffering.

Case 2—Mrs. H. J. C., aged 41 years, was admitted to the hospital on May 11, 1926, complaining of headaches, backache and dragging pain in the pelvis. She had been married for sixteen years, had had four children, the youngest being six years of age, and had had no miscarriages.

The past history was negative except that she had been a headache sufferer all her life and that she had had a severe attack of mumps at the age of 17 years. Beginning five years ago she had had daily fever for over two years. She had been sent to the West for one year without benefit. She had never had more than a little cough and expectoration. For the past two years she had had severe attacks of headache every two or three weeks lasting from 48 to 72 hours and often requiring morphine or codeine for relief. Her eyes had been examined and glasses fitted several times without relief of the headache. She also had been under the care of two different rhinologists who reported no sinus trouble and nothing in the nose to account for her headaches. The patient stated that no roentgen-ray examinations were made. All of the molar teeth had been removed, also the tonsils, without benefit. In the previous few months she had had indigestion, dizziness, and fainting spells, with gaseous distention especially after supper and during the night. She had had much nausea but no vomiting. She stated that she was very nervous and did not sleep well. There was no history of an attack simulating appendicitis or biliary colic. The examination of the nose and throat and mouth was negative to inspection except for the appearance of the posterior pharyngeal wall which was red and irritated. Temperature was 99 4/5, pulse 82, blood pressure 130 systolic, 80 diastolic. Heart and lungs were negative, reflexes normal, abdominal examination negative, pelvic examination showed partial prolapse and retroversion of the uterus, lacerated perineum and a cystocele. The routine laboratory work including a Wassermann was negative. This patient had been referred for pelvic surgery and the question to decide was whether her symptoms were all from the pelvic pathology or from some other condition. Radiographic study of the sinuses was made regardless of the negative reports she had had from specialists in this line of work and a diagnosis of bilateral ethmoiditis and sphenoiditis was made. She was referred to the rhinologist on our staff for surgical treatment. A submucous resection, partial exenteration of ethmoids and drainage of sphenoids was done. This patient has been followed since that time and has had practically complete relief from headaches, no more fever, and has gained enormously in weight. Within a year from the date of the sinus operation, she returned for pelvic repair and is now completely relieved of all symptoms. This is a case which shows the necessity for making a complete diagnosis. Had the sinus condition been ignored and only the general surgery done, we would have had a very dissatisfied patient still suffering from headache and most of the original symptoms.

Case 3. This case was referred to us as a gall bladder or stomach case, the chief complaint being headaches and vertigo associated with an irregular digestive disorder and soreness in the right side of the abdomen. J. T. M., aged 57 years, male, was admitted July 20, 1927. He had had typhoid fever 25 years ago followed by attacks of chills and fever at irregular intervals for four years. No serious illness since that time until the onset of present trouble. Had lost 25 pounds in weight during the past two years. Suffered with present symptoms for the past four years with only short intervals of relief. At first his chief symptoms were dizziness, intense nausea, and during the attacks the vertigo at times would be so intense that he would fall if he suddenly turned his head. The pain and soreness has gradually localized to the right side of the head and face, especially behind the right ear. His hearing was impaired. For months he had been taking a dozen or more aspirin tablets a day and had been through many nights without any sleep. He had no appetite and what he ate caused gastric distress. He had a constant soreness in the whole right side of his abdomen, more especially under the edge of the ribs on the right. In addition to being treated by numerous physicians, he has been under the care of a rhinologist at regular intervals since his trouble began and has had the right antrum opened and frequently irrigated. All his teeth had been removed. Examination showed a well developed man, fairly well nourished, with slight icteric tint to the skin. Temperature was normal, blood pressure 185 systolic and 120 diastolic, pulse shows an occasional irregularity. Tonsils were small, with marked redness of the posterior pharyngeal wall and a mucopurulent drip from the posterior nares. There was no mastoid tenderness and the ear drums were normal. Reflexes were normal. There was moderate cardiac hypertrophy, but no murmurs. The lungs were negative; the liver edge was palpable and slightly tender. The gall bladder region was tender; the abdomen otherwise was negative. The prostate and rectum was negative except for the presence of hemorrhoids. A general blood examination including Wassermann was negative. The urine showed 1/15th of 1 per cent by weight of albumin, a few hyalin and granular casts. The blood chemistry showed urea nitrogen 18.9, creatinin 1.7, sugar 118. Roentgen-ogram of the thorax was negative. Roentgen-ogram of the gall bladder after intravenous injections of tetraiodophenolphthalein showed normal filling and no shadows suspicious of stone. Gastric analysis and radiological examination of stomach and intestine gave negative results. Roentgenograms of the paranasal sinuses showed evidence of chronic inflammation in both maxillary antra, posterior ethmoids, and sphenoids. Here we had a man with

chronic nephritis and hypertension, a chronic myocarditis, an enlarged tender liver, and evidence of chronic sinus disease. Previous surgery in the nose had given no relief, but evidently had not been sufficient. The case was referred to the rhinologist for surgical treatment. A submucous resection, partial exenteration of ethmoids, drainage of sphenoids, and a large opening made into both maxillary antra was done. The patient made an uneventful recovery from the operation and was kept in the hospital for ten days for observation. On discharge, the urine showed a faint trace of albumin and no casts, the blood pressure had come down to 150 systolic and 90 diastolic, the soreness over the liver region was greatly improved, the headaches and vertigo were relieved. Two months later this case reported having had only one slight attack of headache and vertigo, no gastric symptoms, and was feeling better in every way. Six months later he reported no symptoms of his old trouble, digestion perfect, gaining weight steadily and the blood pressure and urinalysis were still normal.

Case 4. This case illustrates the fact that a chronic suppuration in the maxillary antrum can produce a low grade daily fever over a long period of time with very few localizing subjective symptoms. She was referred to me with a diagnosis of a chronic pelvic inflammatory process. Mrs. S. P. D., aged 23 years, was admitted November 12, 1927. Past history—typhoid at age of 12 years, tonsillectomy 5 years ago, otherwise nothing of interest. Her first child was born 8 months ago, normal labor; a few days after confinement she began having fever and had had fever every day since with very few exceptions. Most of the time it was 99° to 100° but occasionally went to 101°; it was highest in the afternoon and evening. The temperature was not affected by her staying in bed and was not increased by ordinary exercise. She suffered general aching and tired feeling most of the time with no localized pain except for persistent backache, some lower abdominal soreness and occasional severe headache. She was nursing the baby and although she has lost very little weight, she had not been able to gain her strength. There was no digestive disorder, no urinary symptoms, ate and slept well. A slight irritation in the throat and a little cough were present. She had been given quinine and many other medications during her entire illness without relief. The most careful general examination failed to reveal anything to account for the fever. Routine blood and urine examinations were negative, the pelvic organs were normal and the lungs were negative to physical examination and roentgen-ray examination. There was an abnormal redness in the throat suggestive of a dripping from the posterior nares. Radiographs of the sinuses showed an

opaque left antrum. The case was referred to our rhinologist and the antrum was drained. It contained muco-purulent fluid. The temperature dropped to normal on the second day following the operation and has remained normal ever since.

Case 5. This case again illustrates that numerous foci of infections may be present in the same patient and the necessity of a thorough clean-up before all symptoms can be relieved. Mrs. F. W. H., aged 50 years, was first admitted January 7, 1924, with an acute gall bladder. The patient was acutely ill and simple drainage of the gall bladder with the removal of numerous stones was done. There followed an uneventful recovery and discharge from the hospital. Six months later she was readmitted complaining of severe headaches and general malaise. Roentgen-ray examination of the sinuses revealed an infected antrum and chronic bilateral ethmoiditis. This was relieved by surgical treatment. One year later she was readmitted, her headaches had been relieved but she still complained of stiff joints and general aching. A pair of small submerged infected tonsils were removed. Patient has been seen several times over a period of two years and reports complete relief from all troublesome symptoms.

Case 6. This case illustrates in a very striking manner a remote fatal complication that may occur, although fortunately it is very rare. Mr. C. B. A., aged 39 years, a banker, was admitted February 4, 1928. He became ill 10 days before admission with an ordinary cold, slight fever and cough. He did not go to bed or call a physician until five days before admission at which time his wife called in a doctor against his wishes. He was complaining of pain in the back and of the head and neck, also of intense frontal headache. His family physician states that at this time he found the patient with no fever, that it appeared to be a mild case of influenza and that he advised his patient to go to bed and prescribed the usual medication. Conditions remained about the same with the chief symptom, headache and pain in the back of neck and head, persisting, until the morning of the day he was brought to the hospital. On that morning, the frontal pain was so severe that a hypodermic of morphin was given which was followed by vomiting and then the patient went into a semi-comatose state. Examination showed a well developed, well nourished middle aged man in a state of semi-coma. He could be made to answer questions but would immediately drop off into a deep sleep. Temperature was 99 4/5°, pulse 84, blood pressure 130 systolic, 85 diastolic, respirations 16. Pupils were equal and reacted to light. Eye grounds were normal. The nasal septum was deviated to the left and a profuse

muco-purulent discharge was present in the nose and in the pharynx, the throat was very red. Examination of heart, lungs, and abdomen was negative. Reflexes were present and not exaggerated. The skin was sallow, the features pinched, and the patient appeared acutely ill. There was no rigidity of the neck. Urinalysis was negative, leukocytes 16,500 with 87 per cent polynuclear. Blood Wassermann was negative, cerebro-spinal fluid negative, blood chemistry normal. Radiographic films of the sinuses shows an opaque right frontal, right antrum and left sphenoid. On account of the violently acute sinus condition, palliative treatment was decided upon and the patient was apparently improving until the morning of the 4th day after admission when he suddenly died. The autopsy findings were extremely interesting. There was a large abscess in the center of the left lobe of the cerebellum into which there had been a recent hemorrhage. There was also an acute empyema of the right frontal sinus. The left sphenoid contained dark muco-purulent material. The antra were not explored. The cerebellar abscess was apparently a metastatic process from the sinus disease and was the direct cause of death.

CONCLUSIONS.

I believe that the average general surgeon of today studies very carefully the patient presenting obscure symptoms from almost every viewpoint except that of the rhinologist; that too many general surgeons do not appreciate the vast number of symptoms and the great amount of constitutional disturbance that can arise in certain cases from disease in the para-nasal sinuses; that too often he overlooks real pathology in the nose. In our clinic, the number of cases of good results from sinus surgery so far outnumbers the failures, that we are constantly on the lookout for the presence of disease in this region in all of our cases. We believe that if more general surgeons will come to appreciate the importance of this subject, that many more cases can get relief from sinus surgery and that there will be fewer failures.

DISCUSSION.

Dr. Lucien S. Gaudet (Natchez): This is too valuable a paper to allow to go by without any discussion. I happen to be an oto-laryngologist myself, and there are so many things he brought out. One of the most important things is the great co-operation that should exist, not only between the surgeon and the rhinologist, but also

between the general practitioner and the rhinologist. The next thing he brought out is the fact that we are having much more sinus work at the present time than formerly. There is a reason for that. The oto-laryngologists are learning to make better diagnoses. We are studying more, we are learning more. We must remember that sinus diagnosis has come to amount to something only in the last ten or fifteen years. Dr. Street says that 15 years ago we knew very little about sinus work. Twenty-five years ago, when I graduated, we knew nothing of it. The only thing I ever saw in relation to nose work was the removal of several polypi once or twice, and in so far as eye work was concerned, we saw some cataract work and an acute inflammation of little importance. It shows the vast amount of progress we have made—the vast amount of work that has to be done. Just recently I received two works which Dr. Hightower of Louisville translated, and he gave us much valuable information, particularly about the ethmoid and sphenoid work. Antrum work is very easy, but he has helped us to clear that condition very much, and as Dr. Street says, if the rhinologist and the general surgeon will co-operate and work a little closer together, the patient will not only reap the reward of the benefit of their studies, but we shall have so many more relieved patients, and we won't slip up so much on our diagnoses. So carefully examine all these cases and get the co-operation of all the men whether it be the pathologist, or the roentgenologist, or the general practitioner, or the surgeon. We should all work together to one common end, and that is to get results and have the patient better.

Dr. W. W. Crawford (Hattiesburg): Dr. Street has brought us a very important message this morning, and as he has suggested, no doubt this field has been tremendously neglected by the general surgeon, and the general practitioner for that matter, as it relates itself to their work. A great many of these sinus conditions are overlooked and the patients have failed to secure relief because of the removal of the pathology in other parts of the body. Despite the fact that the faithful specialists have drained sinuses and have given careful attention to them, there is a reasonable percentage of cases that go on like Tennyson's brook, having their physical symptoms and continue to fail to be well. I have in mind at this moment a patient of mine who had baffled us for a period of more than a year, with a headache in the left side of the head, an area scarcely larger than a dollar. Of course we knew it was a focal headache, and yet when he had consulted the ablest men in New Orleans, Philadelphia, Montreal and Toronto, he continued to

have these localized symptoms, so we gave him mercurochrome intravenously, and much to our gratification and his, secured a very satisfactory response to the treatment. Within a very few months he had gained 10 pounds in weight, and this treatment having been instituted some three years ago, has relieved him up to this time.

Another case I saw in January, a man with a parasinusitis of quite long standing. He had developed facial erysipelas in connection with it which although independent, exaggerated the condition of his sinus. This case was given mercurochrome intravenously, and after two or three doses he said he was not conscious of the fact that he had any sinus trouble at all. I mention this because as I said the specialists do fail in their most persistent efforts to drain, and to relieve these patients through drainage.

Dr. G. M. Street (closing): I thank you gentlemen for the discussion, and I just want now to emphasize one point in my paper, which Dr. Crawford has so admirably brought out, and that is this: sinus operation does not cure sinus trouble. Sinus operation ventilates the sinuses and gives the patient a chance to get well, but that must be followed up. I have had a great many sinus cases that have failed to get permanent results from the drainage and ventilation, but by keeping up with them and giving them mercurochrome intravenously, and giving them sun baths and watching their diet, changing their food, etc., they get well. They must be followed up in order to get results. The general man must keep up with them; he must work with the specialist because the simple drainage does not cure them. It merely gets the patient so he can get well if properly treated.

Another point is that it does not take a rhinologist to make a diagnosis. Any man in a general examination, taking the time to look at the patient carefully so as to be on the lookout for symptoms, can look at the nose and can see whether the nose is blocked, whether there is not a post-nasal dripping; and if he finds these conditions, he can refer the patient to a rhinologist. But above all do not turn the patients loose just as they get in the rhinologist's hands; work with them and see that they get the proper after treatment—that their diet is regulated—and they will get well.

THE TREATMENT OF HAY FEVER AND ASTHMA

WILLIAM SCHEPPEGRELL, M. D., AND N. F.
THIBERGE, M. D.

NEW ORLEANS.

As there has been considerable discussion as to the effect of vaccine in hay fever and asthma, we have tabulated a list of cases showing the relative effects of pollen extract, of vaccine, and of the combined effects of pollen extract and vaccine, in the treatment of hay fever and asthma

VACCINES.

The vaccines used in these tests were principally of three varieties: First a mixed catarrhal vaccine composed as follows:

Vaccine No. 1.

Each cubic centimeter contains 1200 millions killed bacteria as follows:

Micrococcus catarrhalis	50 million
Friedlander bacillus (Bact. pneumoniae)	50 "
Pneumococcus (4 types).....	100 "
Streptococcus hemolyticus	50 "
Streptococcus viridans	50 "
Pseudo-diphtheria bacillus	100 "
Influenza bacillus (Pfeiffer).....	100 "
Staphylococcus albus	350 "
Staphylococcus aureus	350 "

Second, a vaccine in which the organisms were selected on a basis of the bacterial tests of the secretion of 100 hay fever cases during acute attacks:

Vaccine No. 2.

Each cubic centimeter contains 955 millions killed bacteria as follows:

Friedlander bacilli	350 million
Micrococci catarrhalis	450 "
Pneumococci	30 "
Streptococci	35 "
Staphylococci (Aureus)	50 "
Staphylococci (Albus)	40 "

The third is the autogenous vaccine of the patient. While this is considered the most efficient, it requires several days to prepare, and one of the other vaccines was used during acute attacks of hay fever.

Regarding the selection of the vaccine, the first was used in cases in which the acute attack appeared to be due to infection by catarrhal organisms, the second in cases in which the symptoms appear to be due to increased pollen infestation. This was determined by the history of the case checked up by the daily pollen count (1).

Autogenous vaccine was used in cases that did not respond to the stock vaccines, and in which the attack was sufficiently prolonged to prepare this. It is especially advantageous in cases of asthma, and also, to a less degree, in cases of non-seasonal hay fever.

These vaccines are administered during acute exacerbations. The initial dose is 0.25 C. C. for adults, which is followed by 0.25, 0.50 C. C. The usual interval is two days. The dose is repeated the third day as the negative phase develops on the second day when the patient does not respond well to vaccine stimulation. These vaccines are not used in pre-seasonal cases as their object is to control acute exacerbations during the hay fever season.

POLLEN EXTRACTS.

The pollen extracts used were selected on the basis of the initial tests showing the pollens responsible for the patient's hay fever. The routine tests are made with the four Scheppegrell pollen groups, viz., Gramineae, Ambrosiaceae, Chenopodiaceae, and Artemisia.

The tests were limited to the first three pollen groups in patients residing east of the 100th degree longitude, and the artemisia in addition in cases living in the Pacific and Rocky Mountain States. While the initial tests are made with these groups, additional tests are frequently required. In the Southern States,

for instance, the pollen of the ligustrum tree is sometimes an important factor in hay fever, and is occasionally the principal offender. Similar conditions apply to other localities.

The amount of pollen extract injected is based on the reaction of the initial tests of the patient, and is checked by the reaction to each previous injection. The intensive treatment has been found the most effective, the injections being given each day in rapidly increasing doses until the reactions are sufficiently marked to require a longer interval. The maximum dose varies according to the sensitivity of the patient. In some cases 800 to 1000 pollen units are sufficient to establish immunity in the patient, while in others, the doses must be carried as high as 8,000 and 10,000 units in order to give satisfactory results. Marked reactions from the injections are not more common in the intensive treatment than in the former methods.

In all cases a record is kept of the cutaneous pollen tests. For the sake of convenience, these records are placed in numerals of 0 to 100, 0 indicating a negative reaction and 100 a marked wheal two or more C. C. in diameter. In the case of the higher reactions, as from 80 to 100, the initial dose of the pollen extract in pre-seasonal cases is 10 pollen units, and is increased as follows, 15, 25, 40, 65, 80, 100, 125, 165, 200, 250, 325, 400, 500, 650, 800, 1000 units. These administered daily, or if there is reason for haste, such as the patient leaving the city, or the shortness of the intervening season, twice daily. If at any time there is a marked reaction, the intervals may be increased to two days, and the doses reduced accordingly. A local reaction not lasting more than 24 hours is not considered as interfering with the increased doses.

(1) The Hay Fever Association maintains daily records of the common hay fever pollens in the air. These furnish important information regarding the incriminating pollens responsible for acute exacerbations of hay fever.

In the case of high sensitivity, as from 80 to 100, 1000 units is the usual limit in pre-seasonal treatment. In cases of lower sensitivity as 60 to 80, the doses should be

twice the above number of units, and the limit 2000 units. In still lower sensitivity, the doses should be increased to 3000 or 4000 units. In some cases the maximum doses should be 5000 or 6000 units. The full dose should be reached before the patient's hay fever season, and continued at weekly intervals to the end of this season. Should the patient develop a constitutional reaction from these injections, this should not prevent the continuation of the treatment, but simply indicates smaller doses. Constitutional reactions, such as hay fever, asthma, and general miliary eruptions, are dramatic in appearance but are usually easily controlled by an injection of 0.25 C. C. of the standard adrenalin solution. These reactions rarely occur except with the ragweed extracts.

In the co-seasonal treatment, the above method is modified, the doses being reduced to one-half. Should acute symptoms develop, vaccine, as above explained, should be substituted for the extract until they are controlled. As the injections of the vaccine interfere with the progress of the immunizing doses, it clearly shows the greater need of the pre-seasonal treatment. Unfortunately a large number of patients do not apply for the first course of treatment until their hay fever has developed.

RECORD OF CASES TESTED.

In order to determine specifically the effects of vaccine in acute attacks of hay fever, 200 routine cases were selected in 1925 in the clinics of the Department of Hay Fever and Asthma of the Charity Hospital. In order to simplify the tests, these cases were all selected from the ragweed cases during the co-seasonal treatments. In 50 patients, all injections were omitted during paroxysms of hay fever. In 50 cases, the full doses of the pollen extract, which was being administered, was continued during the attacks. In 50 cases, small doses of the extract, which was being administered at the time (about 25 per cent) were injected; and in 50 cases, vac-

cine only was administered during the paroxysms.

The results of these tests were as follows:

	Days
50 cases without treatment, average duration of attack	5.25
50 cases with full doses of extract duration of attack	6.82
50 cases with small doses (25 per cent) of extract duration of attack	3.75
50 cases with vaccine only, duration of attack	2.52

The analysis of these cases shows that the use of full doses of extract during acute attacks of hay fever, prolongs the period of the attack longer than if no treatment is administered. Small doses of extract, however, reduces the average period from 5.25 days to 3.78 days. With the administration of vaccine, however, the duration of the attack is shortened more than one-half the number of days as when no treatment is administered, and one-third less than when small doses of pollen extract is used. The effects of the vaccine in cases of hay fever is so marked, that many patients voluntarily request the injection of the vaccine when suffering from an attack.

In 1926 and 1927 a similar number of coseasonal cases of ragweed patients were again treated in the manner indicated above, and the record of these cases give approximately the same results. The experience of the staff of the Department of Hay Fever and Asthma of the Charity Hospital, therefore, confirms the beneficial effects of vaccine in hay fever, as shown not only from these tests but in the routine treatment of cases generally.

In the cases of hay fever complicated with asthma, and of asthma only, the statistical table has not been prepared because the treatment was more complicated. During attacks of asthma, when there are acute paroxysms, adrenalin or ephedrine is frequently required, so that the comparison of the effect of the vaccine in these cases, while also effective, cannot be so easily estimated. The experience of the staff, in

cases of asthma, however, also shows that the effects of the vaccine in cases of asthma are relatively similar to those in hay fever.

The following list of cases of hay fever and asthma treated during 1926 and 1927 by vaccine, vaccine and extract, and extract respectively indicates the favorable influence of vaccine in these cases.

CASES OF HAY FEVER AND ASTHMA TREATED IN
1926 AND 1927 IN THE DEPARTMENT OF HAY
FEVER AND ASTHMA OF CHARITY
HOSPITAL.

HAY FEVER. COSEASONAL.	
Vaccine:	Cases
Cured	22
Improved	12
	34

HAY FEVER. COSEASONAL.	
Vaccine and Extract:	Cases
Cured	54
Marked improvement	114
Improvement	25
No improvement	3
	196

HAY FEVER. PRESEASONAL.	
Extract:	Cases
Cured	73
Marked improvement	35
	108
	338 cases hay fever

HAY FEVER AND ASTHMA. COSEASONAL.	
Vaccine:	Cases
Cured	11
Marked improvement	8
	19

HAY FEVER AND ASTHMA. COSEASONAL.	
Vaccine and Extract	Cases
Cured	15
Marked improvement	45
Improvement	12
No improvement	2
	74

HAY FEVER AND ASTHMA. PRESEASONAL.	
Extract:	Cases
Cured	11
Improvement	12
No improvement	2
	118 cases hay fever and asthma.

ASTHMA. COSEASONAL.	
Vaccine:	Cases
Cured	17
Marked improvement	24
Improvement	8
No improvement	1
	50

ASTHMA. COSEASONAL.	
Vaccine an Extract:	Cases
Cured	6
Marked improvement	33
Improvement	8
No improvement	1
	48

ASTHMA. PRESEASONAL.	
Extract:	Cases
Marked improvement	4
	4
	102 cases asthma.
Total.....	558 cases

CASES OF HAY FEVER AND ASTHMA TREATED IN
1926 AND 1927 IN THE PRACTICE OF DR.
Wm. SCHEPPEGRELL AND
ASSOCIATES.

HAY FEVER. COSEASONAL.	
Vaccine:	Cases
Cured	42
Marked improvement	24
Improvement	3
	69

HAY FEVER. COSEASONAL.	
Vaccine and Extract:	Cases
Cured	150
Marked improvement	168
Improvement	9
No improvement	2
	329

HAY FEVER. PRESEASONAL.	
Extract:	Cases
Cured	90
Marked improvement	36
Improvement	9
No improvement	3
	138
	536 cases hay fever.

HAY FEVER AND ASTHMA. COSEASONAL.

Vaccine:	Cases
Cured	12
Marked improvement	21
Improvement	3
	<hr/> 36

HAY FEVER AND ASTHMA. COSEASONAL.

Vaccine and Extract:	Cases
Cured	27
Marked improvement	24
Improvement	6
No improvement	1
	<hr/> 58

HAY FEVER AND ASTHMA. PRESEASONAL.

Extract:	Cases
Marked improvement	3
	<hr/> 3
	97 cases
	hay fever and asthma.

ASTHMA. COSEASONAL.

Vaccine:	Cases
Cured	63
Marked improvement	69
Improvement	24
No improvement	3
	<hr/> 159

ASTHMA. COSEASONAL.

Vaccine and Extract:	Cases
Cured	18
Marked improvement	27
Improvement	3
No improvement	1
	<hr/> 49
	208 cases
	asthma.
Extract. Preseasonal	None
Total	841 cases

In the above series of cases, the following physicians took part in the treatment; the tests having been made, and the treatment outlined by Dr. Scheppegrell:

Adams, Dr. J. M., Standard Oil Co., Baton Rouge, La.

Arnold, Dr., Meridian, Miss.

Barrett, Dr. W. W., Lyon, Miss.

Dickerson, Dr. L. D., McComb, Miss.

Dowling, Dr. H. B., Conception Street, Mobile, Ala.

Ewing, Dr. J. S., First National Bank, Vicksburg, Miss.

Farrington, Dr. Pope, 4 Exchange Bldg., Memphis, Tenn.

Gaines, Dr. G. W., Tallulah, La.

Gaudel, Dr. L. S., Natchez, Miss.

Gautreaux, Dr. H. E., Covington, La.

Gray, Dr. E. W., Scanlon Bldg., Houston, Texas.

Grayson, Dr., McGehee, Ark.

Green, Dr. H., Dothan, Ala.

Halliday, Dr. M. R., Meridian, Miss.

Harper, Dr. W. W., Selma, Ala.

Johnson, Dr. J. H., Brookhaven, Miss.

King, Dr. H. A., New Iberia, La.

Langston, Dr. B. T., New Hebron, Miss.

Lucas, Dr. G. C., Ebenezer, Miss.

Maghee, Dr. P. G., Van Antwerp Bldg., Mobile, Ala.

Martin, Dr. C., Welsh, La.

Martin, Dr. J. H., Lake Charles, La.

Mount, Dr. B., 523 Bell Bldg., Montgomery, Ala.

Purser, Dr. T., McComb, Miss.

Roy, Dr., K. A., Mansura, La.

Rudner, Dr. H., Madison Street, Memphis, Tenn.

Sauter, Dr., Waldo, Ark.

Simmons, Dr. R. C., Alexandria, La.

Slaughter, Dr., Bogalusa, La.

Wallace, Dr., Hotel Bentley, Alexandria, La.

Young, Dr. J. D., Shreveport, La.

Young, Dr. M. A., Abbeville, La.

Thiberger, Dr. N. F., Audubon Bldg., New Orleans, La.

TOTAL OF CASES OF HAY FEVER AND ASTHMA
TREATED IN 1926 AND 1927 WITH VACCINES
AND EXTRACTS.

In the following cases pollen extract only was used in preseasonal cases of hay fever and asthma, as the vaccine is not indicated in these cases. Vaccine and extract was used in coseasonal cases, as the majority of these had intercurrent attacks during their treatment. Vaccine only was used in cases where the examination and clinical history indicated hay fever, but in which there was shown no sensitivity to any of the atmos-

pheric pollens, but which reacted to the vaccines.

	Cases
Hay fever cases treated with vaccine	103
Hay fever cases treated with vaccine and extract	525
Hay fever cases treated with extract.....	246
	— 874 cases hay fever
	Cases
Hay fever and asthma cases treated with vaccine	55
Hay fever and asthma cases treated with vaccine and extract	132
Hay fever and asthma cases treated with extract	28
	— 215 cases hay fever and asthma
	Cases
Asthma cases treated with vaccine.....	209
Asthma cases treated with vaccine and extract	97
Asthma cases treated with extract....	4
	— 310 cases asthma
Total.....	— 1399 cases

In cases of sensitivity to food or to epidermal inhalations, the treatment of these cases by elimination of the offending article was first carried out, and, if successful, were not included in these cases.

The satisfactory results in the groups of cases here reported are due to three factors: (1) the use of glycerol pollen extract, which has much greater efficiency than the aqueous extract formerly used; (2) The intensive treatment in which the injections are made at short intervals and carried to much higher doses; (3) The scientific use of vaccine (2) for the control of intercurrent attacks.

(a) Intensive Treatment for Hay Fever, Dr. William Scheppegrell, United States Public Health Report, April 30, 1926.

(b) Hay Fever and Asthma, Cause, Prevention and Cure, Dr. William Scheppegrell, Lea and Febiger.

A CONSIDERATION OF SOME OF THE INTESTINAL PARASITES, WITH A REPORT OF THREE CASES OF "OXYURIS INCOGNITA" INFESTATION.*

ELIZABETH BASS, M. D.,
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It is only since medicine and public health work have come to be considered world problems that the diseases produced by parasitic worms have come into prominence. Since such diseases are very prevalent in many parts of the world, and there is constant danger of their spread into new regions with commerce and immigration, it is important that the medical men, wherever located, should be acquainted with their manifestations and methods of diagnosis and should be able to identify the worms which produce them and know their methods of entrance into man.

In diseases produced by parasitic worms, the clinical picture is usually not very clear cut and the symptoms are easily confused with those of other diseases. In the majority of these diseases, however, the eggs or larvae of the worms escape with the feces and an accurate diagnosis can be made by microscopical examination of the stools.

Appreciating the fact that the majority of physicians have had very little time to devote to the study of intestinal parasites prompts me to offer a brief discussion of five of the more frequently encountered nematode words, with reference to their life history, habitat, mode of transmission, and some of the injurious effects in man.

The most important and the most prevalent parasites are: (a) *Uncinaria*; (b) *Ascaris lumbricoides*; (c) *Trichuris trichiura*; (d) *Strongyloides stercoralis*, and (e) *Oxyuria vermicularis*.

In general there is an anatomical similarity in the different nematodes. All are

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

covered by a transparent, smooth cuticle, frequently ringed, and are cylindrical or fusiform in shape, varying in length from 1 mm. to 40 or 80 cm., according to the species. They have complete digestive, nervous and excretory systems. The sexes are different and easily distinguished, the male being smaller than the female and displaying a coiled or twisted posterior end, whereas the posterior extremity of the female is usually simple and straight.

The majority of these worms are widely spread throughout the world, but are more abundant and more frequently encountered in warm climates. They inhabit usually the small intestine and cecum, and at times the large bowel. All of the worms deposit ova, usually in large numbers, some of which hatch in the intestine. Each species has its characteristic egg, recognized by the size, shape, color and thickness of shell. Under favorable conditions and in varying lengths of time the eggs hatch, giving rise to young larva which, after undergoing certain developmental changes, are re-introduced into man direct, without an intermediate host.

The uncinaria, or hookworms, are among the most important parasites. There are two species, the *Ancylostoma duodenale* and the *Necator americanus*, the latter widely distributed on the American continent. The adult male of the *Necator americanus* is from 9 to 10 mm. and the female from 10 to 12 mm. in length. These worms live in the small intestine, sometimes in large numbers. The delicate shelled eggs pass out in the feces in the two to four segment stage. Within twenty-four hours, under favorable conditions of air, warmth and moisture, the embryo is seen coiled in the shell and hatches into a rhabditiform larva within a few days. Through a process of moulting these larvae become the filariform or infective larvae which bore their way into the skin, the usual method of infection, or occasionally, they may enter the mouth on vegetables or otherwise.

From the subcutaneous tissue the larvae enter the lymphatic or veins, go to the right heart, thence to the lungs. From the alveolar capillaries they pass into the pulmonary alveoli and travel up the bronchi, trachea and larynx, and then down the esophagus through the stomach to the intestine. The time occupied by this journey is believed to be from seven to ten days. Once in the intestine, a further stage of development occurs, when sexual maturity is reached. Eggs are seen in the stool within four to six weeks from the initial infection.

The soil in the area of the egg-carrying stool becomes infected with the filariform larvae, which may live in moist, sandy soil for weeks and larvae have been shown to migrate through moist loam to a depth of 36 inches, travelling about 5 inches a day. It is believed, however, that they ordinarily do not migrate more than 4 or 5 inches from the spot where they are deposited.

The *Ascaris lumbricoides*, or round worm, is thought to have a wider geographical distribution and to infect more people than any other known intestinal parasite. It occurs more frequently in children than in adults, and is more common in rural districts than cities.

The adult worm inhabits the small intestine, but may wander to the stomach and continue to the esophagus and pharynx. The eggs are unsegmented when deposited and require favorable conditions of warmth and moisture and from two to four weeks for development of the embryo. The full-grown embryo lies coiled within the egg-shell until it is introduced by chance into the alimentary canal of the human host, where it is set free, either as a result of the stimulation of the embryo by the alkaline substances in the intestine and by the increase of temperature, or by the action of the juices on the structure of the shell. It is thought the eggs are not infective until the embryo is fully devel-

oped and that the embryos remain living and infective for five years, at least, in water and probably longer in moist earth.

The embryo pierces the wall of the intestine and reaches the liver through the portal system, thence to the lungs through the venous circulation. It then reaches the intestinal tract in the same way as the hookworm larvae. The passage through the blood stream is thought to be essential for the development of the worm.

The migration of the embryo through the tissues and the injurious effects produced by them has been demonstrated in man and numerous animals. Koino⁽¹⁾ swallowed two thousand infective embryos and on the third day had slight fever, with chills on the sixth day and fever lasting nine days, the maximum temperature reaching 104° F. He recovered larvae in the sputum on the third day, with increasing numbers on the fifth day. At the end of fifty days, the worms expelled were not mature.

Manalang⁽²⁾ studied the development and mode of infection of ascaris by artificial cultivation, having obtained eggs from female worms at postmortem or from chenopodium treatment stools, and found that ova developed into motile larvae from nine to fifteen days afterward.

He concludes that the high incidence of ascaris is due to the resistance of the ova to drying under ordinary temperature and humidity, their resistance to sunlight, the impermeability of the egg-shell to food condiments (salt, vinegar and sugar), the long life of the larva in the shell, and to the mechanical carriage of sewage by domestic animals. He believes the origin of ascaris infection is food, drink, fresh fruit or in infants and children whatever objects might contain the larvated ascaris ova of human fecal origin.

The *Trichuris trichiura*, or whipworm, is a common parasite of man and is widely

spread throughout the world. It is more abundant in warm climates and occurs not only in thickly populated but rural districts as well.

The adult male worm measures from 40 to 45 mm. and the female from 45 to 50 mm. in length. The anterior portion of the body of both male and female is greatly attenuated, and this portion of the body is threaded into the epithelium of the intestine, while the thicker portion of the body hangs free. The worm lives usually in the cecum and the appendix.

After the eggs are passed in the feces they develop very slowly, the embryo not reaching full size for 6 to 12 months even under favorable conditions. Brown⁽³⁾ in a series of experiments, was able to demonstrate trichuris eggs in the motile stage in twenty-one days, in artificial culture, but found that they would not develop as far as the motile stage in cultures in direct sunlight, showing that the type of soil is an important factor in the rate of viability of the eggs.

Infection in man occurs through the accidental swallowing of the embryo containing eggs, the shells of which are dissolved by the alimentary juices, thus liberating the young larvae. It is not thought that the larvae of this parasite migrate to the liver and lungs, but that they settle in the large bowel after reaching maturity in from four to five weeks.

The *Strongyloides stercoralis* are very small nematode worms, not more than 2 mm. in length. There are two distinct generations of this worm, one of which lives in the mucosa of the upper portion of the small intestine, and the other outside the body. Only one adult form of the parasitic generation is known. It is believed that the worm is hermaphroditic, the male organs degenerating after fertilization, or that it is a female reproducing by parthenogenesis.

Ordinarily, the parasite lives in the glands of the intestine, where the ova are

deposited and hatch before being discharged from the host. Outside of the body, on reaching water or moist earth, these develop into male and female adult forms, which in turn give rise to a new generation of rhabditum larvae. In about eight days this new generation becomes the filariform or infective larvae. These may grow to maturity if they reach the intestine, but they die off after a time outside of the body.

Direct development may occur when the young rhabditiform embryos passed in the feces are directly transformed into the infective filariform larvae and are re-introduced into the human alimentary canal to become the parthenogenetic females.

In both types of development the infecting larvae usually gain access to the human host by penetrating the skin; if ingested, they bore into the mucosa. From there they are taken up by the circulation and carried to the lungs. They emerge into the air sacs and ascending the trachea, enter and travel down the alimentary canal to become adults in the intestine in from ten to fifteen days. Larvae of a new generation first appear in the stools in seventeen days or less.

This is the one nematode believed to be more frequent in persons of advanced years, probably because sufficient investigation of its occurrence in children is lacking. The age at which the human is infected and the length of life of the worm is not known.

The *Oxyuris vermicularis*, or pin-worm, as far as is known, is found only in man, and has been found all over the world. It occurs in all climates, but is more abundant in the city than in the country.

It is believed to live in the small intestine at first and later in the large bowel. The adult male worm is from 3 to 5 mm. and the female from 9 to 12 mm. The egg containing embryo reaches the alimentary tract by way of the mouth by self-infection, contaminated fruits and vegetables and

perhaps by flies carrying the infection to exposed food.

Ordinarily the ova are not deposited in the intestine. When the uterus of the female is loaded with ripe eggs, the worm migrates to the rectum and may be eliminated with the evacuations. The egg does not hatch until it is introduced through the mouth and is acted on by the digestive juices. The embryo grows to maturity in the small intestine and after fertilization the males die off and the females travel to the cecum and later to the rectum, where they either expel their ova or work their way out and deposit them in the folds of the external genitalia. This usually occurs at night and the scratching induced by the itching causes the eggs to be widely spread about the region of the anus. As a result of scratching, the fingers become contaminated with ova, which may be carried to the mouth and cause a new infection. It is seen that auto-infection can easily occur in the "finger-sucking" child; in fact, little hope of cure can be expected until the habit is overcome. The duration of the life of *Oxyuris vermicularis* in the human body is not known.

I wish to call attention to an interesting observation and report by Harris and Brown⁽⁴⁾ on the study of 121 appendixes in a routine hospital laboratory examination in which they found 22 cases showing oxyuris nematodes. In a number of instances the worms were found deeply buried in the mucosa, sometimes only the head, but in other instances from one-half to two-thirds of the parasite entered the mucosa. The number of worms varied from one to 32 and the majority were found near the proximal end of the appendix, very few being seen at the distal end. It is interesting that these patients ranged in age from 14 to 30 years, averaging 23 years; also that the percentage of infestations in females was four times that in males.



Fig. 1. Cass section of appendix, showing oxyuris vermicularis buried in the mucosa. (Harris & Browne).



Fig. 2. Appendix opened up showing several oxyurids. (Harris and Browne).

The clinical history of nearly all the cases was one of recurrent attacks over a period of one or more years, consisting of abdominal discomfort, pain, more especially in the right iliac region, and nausea, with little or no fever. In only a few of the cases slight increase in the total leukocytes occurred, the differential leukocyte count being practically normal in all, with no eosinophil increase. The writers stress the fact that no stool examinations were requested previous to the operation, which would indicate that the presence of intestinal parasites was not considered likely or in any manner related to the case.

I wish to report three cases of the so-called "*Oxyuris incognita*" of Kofoid and White,⁽⁵⁾ now recognized as the *Heterodera radiculicola*, a root parasite.

This ovum when first seen and described by Kofoid and White in 1919, was classed with oxyuris because of its asymmetry suggesting this species. The size of the egg and in addition the two highly refractive, hyaline blue-green globules, usually flattened asymmetrically at the poles of

the egg, were sufficient to demonstrate its unique position among human helminth ova. The egg measured on the average 95 by 40 microns, but ranged in size from 68 to 133 microns by 33 to 43, dimensions greater than those of the ovum of any previously known human intestinal worm.

The fact that these eggs appeared sporadically in the stools and that their occurrence was especially noticeable in the summer, when vegetable salads are a significant article of diet, led Sandground⁽⁶⁾ to experiment with the root nematode, *Heterodera radiculicola*, which is both widely distributed and extremely common. He observed that the ova of this species pass through the human alimentary canal apparently uninjured and that they are in appearance in every respect indistinguishable from the eggs of the supposed *Oxyuris incognita*. In one case the larva was also positively identified as that of *Heterodera radiculicola*.

Kofoid and White reported 429 cases out of 140,000 soldiers examined at Camp Travis, Texas. Burnell,⁽⁷⁾ of Australia, in 1921, added 61 cases, including four of



Fig. 3. Ova of *Heterodera radiculicola*, drawn to scale, in different stages of development. (From Saugronid's).

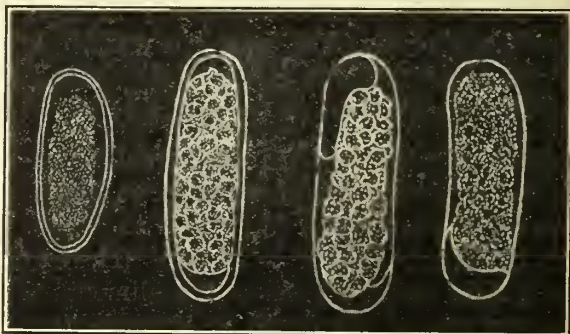


Fig. 4.—Ova of reterodera radiculicola, with oxyuris vermicularis ovum at right for Comparison.

Sawyer's patients. Wycoff and his co-workers⁽⁸⁾ saw 26 infestations in residents of California in 1923. One of my cases is a young man seen six years ago, in whom hookworm ova were also found. The other two cases are in two little Spanish girls, sisters, seen in February of this year, referred by Dr. E. L. Faust, of New Orleans.

Both of the children have trichuris infection. In all the cases reported, no one established relationship of occupation, place of residence or food contamination to infection. If symptoms occurred, the presence of human parasites were thought to be responsible. All ova disappeared, regardless of treatment, within three days and there was no recurrence.

My only excuse for presenting the cases is because of the possibility of the ova being confused with the ova of parasites found in man.

We are all fairly familiar with the usual symptoms that accompany parasitic infections, such as anemia, digestive and nervous disturbances, the severity of which is in most instances dependent upon the type of infestation, and, perhaps, partly upon the age and susceptibility of the patient.

Anemia may be either chlorotic or pernicious in type if the infection has been accumulative. The anemia in the instance of hookworm and strongyloides is not only due to the loss of blood but partly, perhaps, to the absorption of the toxic substances which it is believed these worms secrete. The poisons inhibit the coagulation of the blood and thus induce the persistent oozing which occurs from the denuded surfaces caused by the parasites.

The studies of the International Health Board on the effects of hookworm disease on the mental and physical development of children indicate that the disease interferes with both mental and physical development, the permanency of ill effects being directly related to the severity of the

infection and to the length of time it persists.

Eosinophil increase is common in all of the five nematode infections mentioned, except the pinworm, at some stage of the disease. Although not diagnostic, it is significant and its presence should be followed by careful stool examination.

Since with almost all of the parasitic worms of man an injurious effect is produced in light manifestations as well as heavy, and although there may be no noticeable symptoms, and since every "carrier" is a potential spreader of the disease, it would seem that the greatest accuracy in diagnosis is desirable. On account of the presence of ova or larvae in the fresh stool, the diagnosis can usually be made by microscopical examination.

The treatment of parasitic diseases has not been presented. However, most of the recent text-books and current medical journals on the subject give the outline of such management. The reader is referred especially to the *Manual of Tropical Medicine*, by Castellani and Chalmers, and to *Abt's Pediatrics*.

Correct diagnosis and medicinal measures, followed up by preventive measures, are essential for the control of these diseases.

The prophylactic means are principally the proper disposal of human excreta, with cleanliness in the preparation of food, as well as personal cleanliness, and the avoidance of contaminated water and fruits.

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8. Wycoff, H. A., Reed, A. C., & Pringle, C. C.: Clinical note on occurrence of *oxyuris incognita*. *Med. Clin. N. A.*, p. 1445, May, 1923.

DISCUSSION.

Dr. Aldo Castellani: Mr. Chairman, ladies and gentlemen: I should like, first of all, to be allowed to congratulate Dr. Bass on her most interesting paper. Dr. Bass had the kindness to show me a number of her specimens, and I have no doubt, whatsoever, that her microscopical diagnoses were correct.

Study of intestinal worms, even the commonest worms, have great importance not only from a purely pathological point of view, but also from a clinical point of view.

In certain quarters, the old teaching still lingers, that, apart from the hook worm, the other worms have little pathogenic action, and if they have, it is merely local on the mucous membrane of the intestine.

I remember when I was a medical student, twenty-five years ago, a poor woman brought her little boy to the clinic held by one of the most famous professors in Europe.

The little boy was suffering from bronchitis, and the woman said, "I came to you because the boy has a cough, and I know it is worm cough, cough from worms." The professor laughed, and you may laugh, too, but in view of the present knowledge, now that we know the migration of the intestinal worms through the lungs, there is no doubt whatsoever but that woman was right.

There is a symptom which is often found, in my experience, in cases of helminth infestation which is hardly mentioned in text-books, and that is fever. I will limit myself to saying one word on the fever which is often present in cases of hook worm disease. I happened to describe this condition in Ceylon some years ago.

We had an excellent example of the condition, last year, at Charity Hospital, in a little boy from the city. The fever is of three types, you have an intermittent type, every day about ten or eleven o'clock in the morning, the temperature begins to rise and reaches its maximum about two or three in the afternoon; the maximum generally is between one hundred and one hundred and one, occasionally one hundred and two; it goes down toward night. Then, you have the second type, the so-called recurrent or undulant type;

you have several periods of fever, each lasting eight or ten hours. Each day, the fever goes down, until it becomes normal. I have seen two of these cases mistaken for Malta fever. Then the third type is the so-called irregular type, when the temperature may be one hundred and two, one hundred and three on some days and on others ninety-nine.

With regard to the origin of this ankylostomiasis fever, some authorities believe it is caused directly by the worm, that is to say, that the worm excretes certain toxins which will cause fever. I am rather of the opinion that the fever is not caused by the worm itself, per se, but is indirectly of bacteriological origin, that is to say, the little wounds made in the mucous membrane by the hookworm become infected by certain intestinal bacteria, which sometimes enter the general circulation.

In favor of my contention, are the following two facts: First, the temperature very often continues for two or three weeks after the antihelminthic treatment has been given and has been successful; second, in a number of these cases, the blood of the patient shows agglutinins for certain groups of intestinal bacilli. In a case we had at Charity Hospital last year, the blood gave agglutination for intestinal bacilli.

In conclusion, I should like to again congratulate Dr. Bass on her most interesting paper.

Dr. Clyde Brooks: I believe we are getting more to appreciate the value of studying parasites. At the University of Alabama, where we have been making a survey of the students, we find about twenty-five percent infestation with hookworm. Furthermore, this is not confined to the rural districts. We find hookworm cases right in Tuscaloosa. We should congratulate Dr. Bass on this excellent piece of work, and should try to put it in practice so far as we can.

Dr. C. C. Bass: I don't believe I have any discussion to offer. I am sure you will agree that this paper is timely to remind us again of the importance of a very common and prevalent disease or condition, that of intestinal parasites. The importance of infestation with some of these parasites, especially, has been very greatly emphasized recently by the discovery that in the case of most of them, the larvae pass through the lungs and do a great deal of damage there. It is demonstrable experimentally in the case of strongyloides, as we had already known was the case with hookworms.

I remember many years ago, inoculating guinea pigs with very large numbers of hookworm larvae and observing the lungs just a few hours afterwards. It is simply amazing and one can hardly

appreciate it until he actually sees it with his own eyes, the amount of damage that is done by the larvae as they pass through the lungs. Much the same thing has been demonstrated to occur with ascaris and also with strongyloides.

It is interesting to recall, also, the fact mentioned by Dr. Elizabeth Bass, that the strongyloid is a harmful parasite, especially of old people. As infected individuals grow older, their infection usually increases, and although the infection is more or less harmless during the active younger period of life, very serious damage may be produced by the rapidly increasing number of larvae passing through the lungs in very old people.

Dr. Geo. S. Bel: Mr. Chairman and Members of the Society: Dr. Bass is to be complimented upon her very carefully prepared and ably presented paper.

I now recall a patient who presented herself at my office. She was muchly emaciated and complained of coughing. Without performing a physical examination, I requested that she send a specimen of sputum for examination. A few days later, much to my surprise, I received a report from Dr. W. H. Harris, to whom the specimen had been sent, stating that a large number of ova of uncinaria were present.

This incident I have never forgotten.

Dr. Guthrie: Mr. Chairman and gentlemen: It was my good fortune to report the first case of American hookworm in Louisiana, in 1903, and since then, I have been more or less interested in the subject.

At the Base Hospital here in Alexandria, we had the Thirty-ninth Division; the Thirty-ninth Division was composed, as you know, of troops from Louisiana, Mississippi and Arkansas. We made a survey, after the epidemics of meningitis were finished, and found the statistics on the Thirty-ninth Division, so far as hookworm was concerned, about as Dr. Brooks described them, about twenty-five or twenty-seven percent of infestation.

It seems, in the meantime, we know that from our clinical experience of today, that the proportion in the hospitals, our proportion of hookworm infestation is very much lower than that. We do not get the heavy infestations as before. We have been priding ourselves that, with the money expended by the Rockefeller Foundation and all the activities at work, we have cut down that infection enormously. Dr. Brooks' statistics on infestation are rather startling, and it would seem that we have further work to do.

Anyone who has worked on animals knows what a frightful struggle it is in the way of keeping

those animals from intestinal parasites. Our own struggle is less than that, but still a factor in public hygiene. We must work on this problem from the standpoint of constitutional and distant infection. The motion of the migration of the organism, which we have known for sometime, the temperature reaction would suggest very strongly the possibility of infection, and it would seem more likely that the infection left by the worm, in its passage through the bowel through the tissues was a responsible element rather than something secreted by the worm, himself.

Dr. De Buys: Several years ago I made a survey of five institutions and examined the stools of five hundred and ninety-five children. Dr. Hugh C. Dwyer collaborated with me. We wanted to know what intestinal parasitic infections existed in these children; with what frequency; and what value should be placed on those symptoms usually ascribed to these infections. As you all are aware frequently parents will say, "Doctor, my child had worms," and will give a reason for their opinion the existence of the symptoms of picking of the nose, scratching the anus, gritting of the teeth and restless at night, etc. In the study it was found that these various symptoms were as frequent in those individuals who were not infected as they were in those who were infected. The bloods of all the children were also examined. While an eosinophilia may be looked upon with suspicion it is not diagnostic of an intestinal parasitic infection. For indeed we found at least one instance, in every type of infection included in our study, of the absence of an eosinophilia. The only absolute diagnosis of the existence of an intestinal parasitic infection is the finding of the parasite or its ova. It is interesting how free from any symptoms children may be. It has been my custom for many years to include a stool examination of every patient brought me for consultation, no matter what might be the ailment. It is illuminating to note the frequency of infections and especially so in those cases from the tropics. Triple and quadruple infections are not unusual, and in children too who have no suggestive symptoms.

After the diagnosis is made what is to be done with the patient regarding the treatment. It has been very discouraging at times to see how inefficient are the various drugs which are advocated for the individual worms. With some of the worms there are drugs which appear to be specific. In some of the more common infections as for example the round worm I have seen cases where santonin and all the other intestinal anti-parasitic drugs have been ineffectual.

A simple point in the treatment of oxyuris which was brought to my attention several years ago and has proven of much value and which I

wish to pass on to you is, to put on the patient some kind of garment so that the individual's finger-nails cannot reach the anus and thereby the individual cannot reinfect himself with his hands by carrying the infection to his mouth.

I think that the paper which Dr. Bass has presented emphasizes very clearly the cycle of the parasites that she considered. I cannot help but mention that there is much to be done in connection with the treatment of the various types of intestinal parasitic infections.

Dr. Harris: Any further discussion? I would like to make a few remarks. Dr. Bass, in her paper, has very kindly alluded to the observations carried out by Dr. D. C. Browne and myself, upon the presence of the oxyuris vermicularis in the examination of routine appendices removed in a considerable number of cases. A very striking fact, as Dr. DeBuys has mentioned, is that these patients gave no other symptomatology to occasion one to think of a parasitic infection. It also lays stress on the fact in these cases of rather obscure symptomatology with reference to the appendix, that in nineteen percent of the cases, we found the oxyuris had invaded the appendix and brought about pathological changes in the mucosa.

I might mention, along the lines of oxyuris, another member of the group that we chanced upon in our work. There has been considerable discussion as to whether the oxyuris occasioned appendicitis, and Dr. Brown and I attempted to carry out some experiments in the lower animals. The monkey has no appendix, and, contrary to the evolutionary notion, we found that the rabbit (unless he may be considered nearer the human) has a very splendid appendix, practically amounting to a diverticulum.

We, therefore, fed the rabbits with a certain number of living oxyuris vermicularis, and, after a certain period of time, we gave the rabbits a dose of castor oil, to see whether our number of parasites introduced, usually forty or fifty, had multiplied. We were surprised to find a tremendous evacuation in one animal, consisting of about one thousand or more parasites. We noted they were a little more white and a little shorter than those we put in. We thought possibly the herbivorous nature of the animal, which had been infested, may have modified this organism. Upon further study, however, we found that the rabbits are occasionally infested with an oxyuris ambigua, and, as a matter of fact, there are a considerable number of oxyuris that exist among lower animals.

Is there any further discussion? If not, I will call on Dr. Bass, and, in closing, she might show the lantern slides which she has gone to some trouble to prepare.

Dr. Elizabeth Bass (closing): In closing may I say that it required not a little courage for me, an embryo in the knowledge and study of intestinal parasites, to even attempt to skim the surface of the subject in the presence of the eminent and world recognized authority, Sir Aldo Castellani.

One only has to look at the Manual of Tropical Medicine in which he is joint author, without attempting to read or absorb much of its contents, to appreciate our good fortune in having him present to discuss this superficial paper. After all I feel that for you my feeble attempt has been "a blessing in disguise."

I wish to thank all of those who have taken part in the discussion, and especially to thank Dr. Harris for having given me the privilege of appearing on the program.

REVIEWS

THE B. C. G. VACCINE.*

REPORT ON CERTAIN RESEARCHES BY
DR. A. BOCCHINI.

ABSTRACT TRANSLATION WITH INTRODUCTION.

JOHN SIGMORELLI, M. D.,

NEW ORLEANS.

Because of the widespread general interest, and particularly because of the local interest recently manifested in the work

being done by Calmette and his co-workers on the development of a vaccine for the immunization of infants against tuberculosis, the writer has thought it opportune to bring to the attention of this body, the reported results of research work carried on in this connection, at the Institute of Clinical Pediatrics, Royal University of Perugia, under the direction of Prof. I. Nasso, and reported by Dr. Adriano Bocchini in the February 15 issue of "La Pediatria." The writer is especially prompted in this by the

*Read before the Louisiana State Pediatric Society, Baton Rouge, April 9, 1928.

act that this is the first report coming to his attention which is at variance with the many other writings he has seen on the subject, and which have been more or less uniform in their enthusiastic spirit of commendation. The subject is so vastly important and the possibilities for good or for harm are so far-reaching that we, to whom the public justly looks for guidance, must accept it as a duty to learn fundamentally whether we are dealing with an innocuous substance capable of producing only good in the host, and at worst neither benefit nor injure our patients; or whether in introducing this vaccine we are furnishing our patients with a potential active tubercular infection.

Bocchini introduces his article by reviewing previous attempts made in endeavoring to develop an anti-tuberculosis vaccine with special reference to the work of Maragliano in 1885. He then details the theory and development of Calmette's vaccine, giving detail statistical data already reported by various writers, and finally justifies his own experimental work with the following paragraph:

"Before beginning vaccination in the human species, however, we desired to undertake a series of experiments upon animals with view of becoming personally acquainted with inability of the vaccine, however administered, to provoke lesions of tubercular nature, and of its preventative efficiency.

"The vaccine was generously furnished by Prof. Ascoli, Director of the Institute 'Vaccinogeno Antituberculare' to whom we renew our expressions of gratitude.

"We submit at this time the results of experiments covering a series of rabbits treated endovenously. As to the technique of administration and the doses (vaccination and virulent) we have strictly abided to the rules indicated by Calmette in his latest works.

"On February 23, 1927, twenty rabbits whose weights were from 2500 to 3200

grams, were given intravenously a single dose of 30 mgr. of B. C. G.

"Between the twentieth and fortieth day from the inoculation four rabbits were sacrificed.

"Autopsy in each case showed the lungs to be permeated with small nodules of a light yellowish color; these were located beneath the pleura and within the parenchyma. Histological examination of the lung tissue made by Prof. Businco, Director of the Institute of Pathological Anatomy of the University, showed evidence of a desquamative broncho-pulmonitis, characterized by numerous foci of variable size, irregularly spherical, most of which were located within the parenchyma; often in close proximity of, or in contiguity with the bronchioles or small blood vessels. The smaller ones were the size of a pulmonary alveolus of which they obliterated the lumen; others progressively larger result from confluent involvement of several adjacent bronchial or alveolar areas.

* * * * *

"Staining by the method of Ziehl demonstrated occasional acid-fast bacilli.

"*Liver*: Macroscopically reveals only occasional small nodules of a light yellowish color. Histologically the tissues present several granulomatous formations of various sizes, made up of small foci of lymphocytic infiltration and epithelial cells.

"The *spleen* presented hyperplasia of the follicles and dilatation of the lacunae, which were filled with epithelial cells.

"No other findings of note were discovered in the other viscera of these sacrificed animals.

"Two and one-half months after vaccination the remaining 16 rabbits were administered a toxic dose, consisting of the endovenous administration of 0.5 mgr. of a virulent bovine tubercular culture emulsified in 0.5 cc. of sterile physiological (salt) solution.

"An identical inoculation was administered to 6 non-vaccinated rabbits, to be used as controls.

"About one and one-half months later two rabbits of the control series died. Autopsy presented a picture of generalized military tuberculosis with lungs, liver, kidneys, spleen, etc., permeated with tubercles.

"A few days after the death of the two control rabbits, one of the vaccinated rabbits died. Autopsy by Prof. Businco, showed all the lobes of both lungs increased in size with the pleural surfaces quite rough from the presence of numerous spherical elevated nodules, yellowish in color and gelatinous in appearance, which alternated with areas of crimson color. The general consistence of the entire lung was diffusely nodular.

"On section the surface presented numerous nodules of sizes varying from a pin point to a grain of wheat or even larger; the larger were mostly cortical and sub-cortical, yellowish in color, compact and moderately moist.

"*Liver*: Congested with many small light yellow nodules about the size of the head of a pin; the same nodules were present on section surfaces.

"The *spleen* was generally congested.

"The *kidneys* were normal in size, and showed diffuse punctiform nodules especially in the cortex.

"*Histological examination* of the lungs showed a desquamative broncho-alveolitis, and caseous nodular foci, either circumscribed or confluent, more especially characterized by an abundant de-epithelialization of the bronchioles and alveoli, and infiltration of the septi. In certain locations the desquamative changes of the entire lung tissue in form of circumscribed foci which show homogenization and necrosis. Separating these foci were areas of parenchyma less occupied by exudate and

others showing enlarged bronchioles and alveoli (emphysema). All over there was a conspicuous repletion of vessels showing proliferative changes of the intima and lymphocytic infiltration.

"*Liver*: Upon a general background of hyperemia and fatty degeneration, were numerous granulomatous formations. There was lymphocytic infiltration and recent proliferation of the connective tissue about the portal vessels.

"The *spleen* presented hyperplasia of the follicles, and notable dilatation of the lacunae which contained quantities of hemoglobin-pigmented large cells of a yellow color.

"The *kidneys* presented hyperemia and an occasional hemorrhagic focus; also moderate degeneration of the tubular epithelium. The most striking finding was the presence of several nodular formations, though these were not very numerous.

"During the succeeding weeks other animals of our series died; those which had been vaccinated as well as those of the control series. At the end of three months every one of them had died.

"Autopsy of the vaccinated rabbits presented lesions more or less analogous to those described above, both macroscopically and histologically.

"We do not consider it necessary to add prolonged discussion as nothing could add to the evidence of the above facts.

"Administered endovenously to rabbits in maximum doses of 30 mgr. the B. C. G. vaccine did not demonstrate itself either innocuous nor efficacious since, it provoked lesions of specific nature (desquamative broncho-alveolitis) and did not protect the animals so vaccinated from subsequent virulent inoculations.

"Already Heymans had cast doubt upon the efficacy of the B. C. G. vaccine. This author having vaccinated and later inoculated by endovenous and subcutaneous ad-

ministration of very weak virulent bacilli about 150 guinea pigs and rabbits, saw all the vaccinated animals die from generalized tuberculosis, surviving only by a few days or weeks the controls. Even the animals kept together with guinea pigs affected with active (open) tuberculosis, in spite of vaccination, contracted a fatal tuberculosis.

"Recently Coulaud noting and describing the vast and profound lesions met in rabbits receiving maximum doses of B. C. G. endovenously, concludes that these never produce caseous formations and in all cases there is an evolution towards complete recovery, both biologically and histologically. However, it is also true that Coulaud injected only 15 mgr. of the vaccine (half the dose advised by Calmette) and did not subsequently conduct any virulent control tests.

"More recently Kraus, Selter, and Blumenberg, though admitting with Calmette that the vaccine B. C. G. administered by mouth, in limited doses, is inoffensive, insist upon the tubercular nature of the lesions met in the animals vaccinated by the intravenous and intraperitoneal routes. These findings have been, at least in part, confirmed by Suarez, who, apparently authorized by Calmette, justifies them by affirming that if the vaccine B. C. G. is avirulent this does not exclude that it might be pathogenic.

"But admitting that the lesions provoked by the endovenous administration of the B. C. G. evolve with certainty to a complete recovery, the vaccine, however did not protect our rabbits against the administration of virulent bacilli, as a control. All the animals in fact died within the space of one to three months presenting signs of generalized tuberculosis. And here it is of interest to refer to a female rabbit vaccinated and subsequently inoculated with

virulent germs which, four months after the vaccination and 48 days after the control inoculation, gave birth to a premature fetus, which at autopsy did not present any tubercular lesion. Pieces of organs from the fetus, however, inoculated by laparotomy, within the peritoneal cavity of a guinea pig, produced death of the animal at the end of 26 days after inoculation, with findings of a classic generalized tuberculosis.

"Which demonstrates that not only had the B. C. G. failed to protect the mother from the virulent inoculation, but had also permitted the virus to pass through the placenta and infect the fetus.

"Before concluding it seems opportune to insist that the grave lesions met by us and other authors refer exclusively to animals treated by the endovenous route of administration of the vaccine.

"We do not put aside the fact that the vaccine administered by oral route and in small doses may result harmless. But may it not be that this innocuity depends not so much upon the avirulence of the germs as to the route of administration.

"Altogether it does not appear advisable to us to use in the human even by the oral route and in small doses, a vaccine which administered endovenously provokes very grave lesions, upon the tubercular nature of which every one is in accord.

"Moreover, studying carefully the statistics of Calmette, of Weill-Haill  and of Turpin, one can not be but surprised by the relative frequency of cases of tubercular meningitis observed even in the earliest months of life in infants which had been vaccinated. The onset, so early, of this localization, which usually is met after the third or fourth month of life, might not without reason, be placed in close relation to the administration of the vaccine."

CASE REPORTS AND CLINICAL SUGGESTIONS

CASE REPORT OF LOBAR PNEUMONIA TYPE II

WITH POSITIVE BLOOD CULTURE.*

CHAILLE JAMISON, M. D.,
and
HYDER F. BREWSTER, M. D.,
NEW ORLEANS.

Lobar pneumonia, as one of the major causes of death, must necessarily command the attention, time and only too often the disappointment of the internist. Fortunately, we now have a specific anti-serum with which to combat Type 1 pneumonias when employed sufficiently early. Type IV is not so terrifying because of its relatively low mortality. The chief point of contention is now with types II and III both of high mortality and against which we have no sepecific sera These types are highly fatal when blood cultures are positive.⁽¹⁾

CASE OF P. W. (No. E22804).

This case is one of Type II lobar pneumonia, presenting a positive blood culture, occurring in a young vigorous negro male, 24 years of age, hyposthenic in type and weighing 155 pounds. He was admitted to Charity Hospital October 15, 1927, at 10:15 p. m.

The history on admission revealed the immediate complaints of headache and pains in the upper right abdomen and lower right thorax, the latter exaggerated on deep breathing or coughing. The illness dated from 7:30 p. m. of October 13, when, with very slight prodromal symptoms and no definite exposure, the patient had a rather severe chill followed by headache, fever, general malaise and rather sharp pains in the

upper right abdomen and the lower right thorax. Soon a non-productive cough developed which exaggerated the pains considerably; later the cough became productive of a very tenacious sputum which, by the time of admission, had become strikingly typical of lobar pneumonia. No other complaints were admitted and the past history revealed nothing of importance except that the patient had never had any type of pneumonia before; had always been strong and healthy, and that previous to about eighteen months ago he had been a rather heavy drinker.

The physical examination on October 16 revealed a well-developed and well nourished light chocolate colored negro male, hyposthenic in type, 24 years of age, weighing 155 pounds, lying quietly in bed on his back. He was mentally clear and accurate, but gave the general impression of being very sick. It was at once observed that the sclerae were deeply jaundiced, the ala nasi dilated widely on early inspiration; the respirations were rapid—36 per minute; there was an expiratory grunt, and that herpes covered about one-half the surface of the lips. The lower part of the right lung—lower lobe—was relatively inactive, having very little, if any, expansion and practically no vertical excursions. Over the lower lobe of the right lung were elicited flatness on percussion, increased tactile fremitus, bronchial breathing, bronchophony and pectoriloquy. Only along the upper border of this area could a few fine moist rales be heard. Tenderness was noted over the lower part of the right thorax, especially in front. The heart was normal in size and position; its sounds were rather clear and loud; the rhythm was regular—rate 120 per minute; no murmurs were present. The abdomen presented only tenderness of a moderate degree along the right costal border, with detectable rigidity of the upper part of the right rectus. The extremities presented nothing of note except a radial pulse of good volume and tension and well sustained.

LABORATORY EXAMINATIONS.

Sputum, October 15, 1927—Tenacious and "rusty", presenting many Gram positive lancoid diplococci; sputum typed No. I.

*Read before the Orleans Parish Medical Society, April 23, 1928.

Urine October 16, 1927	October 20, 1927	October 24, 1927
Sp. Gr. 1.015	1.009	1.010
Albumen, 1 per cent	0.5 per cent	1 per cent
Few pus cells	Few pus and r. b. c.	Few pus and r. b. c.
Few fine gran. cast	Mod. fine and coarse granular casts	As for October 20

Other findings negative except for bile pigments.

BLOOD COUNTS Oct. 16, 1927 Oct. 20, 1927 Oct. 25, 1927

Total red cells.....	4,330,000	4,250,000
Total white cells..	22,750	36,750
Small mono.	4	1
Large mono.	1	1
Eosinophils	0	0
Basophils	0	0
Neutrophils	95	98

BLOOD CULTURES

October 17, 1927	October 24, 1927
Positive and Type II	Positive and Type II
Six colonies per one cu- per one cubic centimeter of blood.	One hundred colonies one cubic centimeter of blood.

Blood Wassermann October 17, 1927, negative.

TREATMENT.

The usual symptomatic measures were initiated and continued. High caloric diet, especially carbohydrates with an abundance of fluids, was stressed. Brandy was given in moderate quantities.

On the basis of the sputum typing I on admission, Type I antipneumococcic serum was given intravenously in 100 c.c. doses as per chart until 600 c.c. had been given in three days.

This produced no change in any phase of the case and only after the initial dose did there occur a slight reaction in the form of chilliness with some increased sense of depression. Our suspicions were justified when the blood culture proved to be positive and of Type II. Having no specific serum for Type II, intravenous administration of a one per cent aqueous solution of mercurochrome was initiated at once and continued daily as per graphic chart until 95 c.c. had been given in seven days. No mercurochrome was injected longer than thirty minutes after preparing the solution, and no reactions occurred.

SUMMARY OF THE CASE.

No better general view of the case can be had than that obtained from the graphic chart which presents temperature, pulse, respiration, blood pressure, intravenous medication and some important laboratory features, all collected in time sequence. At no time did there occur any substantial improvement in the general condition of the patient, no medications being of curative value. There are some very interesting fluctuations of blood pressure without any explanation. Also, great changes in respiration, but without definite association with the blood pressure. The

pulse rate does not follow inversely the blood pressure in all instances. The fall in temperature simulating crisis nearly 24 hours before the death of the patient is also of interest.

(1). Cecil, R. L., Baldwin, H. S., and Larsen, N. P.: Lobar Pneumonia, *Archives Int. Med.* 40: Sept., 1927.

DISCUSSION.

Dr. John H. Musser (New Orleans): This paper of Dr. Jamison's was very instructive and more than unusually interesting because of his paper read before the last meeting of the Louisiana State Medical Society which reported a series of cases of Type II pneumonic infection.

Despite the number of cases of pneumonia which have been reported as being benefited by the administering of mercurochrome—the fact remains that in few cases do we know the exact results from the use of this drug. In the case reported by Dr. Jamison mercurochrome had no effect whatsoever; if anything, it had a deleterious effect. In the treatment of this condition, we must bear in mind that, so far as we know at the present time, mercurochrome has no effect, except in the early stages. After the first 24 or 48 hours there is little if any benefit from the use of this drug.

It is hard to judge accurately the result of treatment in the disease, pneumonia—I know of nothing more difficult. I have known one hospital, for some years, to admit all patients to one of three services in order to estimate the efficacy of three different lines of treatment:

- (a) quinin and urea;
- (b) expectant or digitalis;
- (c) anti-body preparations.

One winter the service that was using one of these preparations had marvelous results; the second winter another service was the most successful and the third winter, the service which had not done as well the two previous winters had the best results. So you can, therefore, see that it is difficult to evaluate the efficacy of any treatment of pneumonia. We must bear in mind the consideration of the different types of pneumonia and that in different winters one type of pneumonia is more frequent than the others. It varies much in different winters. It is rather hard to make any dogmatic statement about the different types, their seriousness and frequency unless a study is carried on for some time. Dr. Jamison hopes to continue to study pneumonia and I am sure that he has brought out many interesting facts tonight. To these, I hope, will be added many more, as a result of his future studies of this disease.

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THE NATIONAL ELECTION.

The present number of the Journal will be out but a few days before the decision of the voters throughout the country will be made which will determine who shall act as their Chief Executive for the coming four years. In the short time that is left before November the sixth, make up your mind definitely and unalterably that you are going to vote, and to vote without bias or prejudice for the man you consider the better of the two candidates. The average physician regards elections with an almost ubiquitous lethargy. This is unfortunate because he, above all other men in his community, is blessed with the attributes of

common sense, good judgment, public spirit, breadth of vision and social perception. Therefore, make use of these gifts directly by personal example and indirectly by word of mouth after mature judgment has formed your opinion. Remember that "the right of franchise is the right to vote—the most valuable heritage that the American people have." If this right was more generally observed by physicians than it is, their ideas and ideals concerning health, social, and public measures of their State or Parish would receive the attention from legislators they warrant.

In the present election national policies for the next four years will be largely decided. Now is the time to make your opinion felt. The candidate of one of the great parties has proved an able executor of enormous charitable benefactions; the other has done more in providing and caring for the lame, the halt, the blind, the sick and the insane of his State, or any State, than any man who has ever occupied a gubernatorial chair. Both men have shown their worth. Both men should prove satisfactory to the doctors of this country from the point of view of the elucidation of social problems. Therefore, let other considerations form your decision which will be expressed on Tuesday next by your formal casting of the tangible evidence of the right of franchise—the ballot.

THE NATIONAL INSTITUTE OF HEALTH.

Senator Ransdell has recently sent out to the medical profession in the State of Louisiana Report No. 1280, which has to do with the bill which the Committee on Commerce, of which he is Chairman, has under consideration. The purpose of this bill is "to promote the health of human beings, to prolong their lives, to increase their happiness, to improve their earning capacity, and to reduce their living expenses." A consummation of such Utopian ideals would most certainly create the millennium, but unfortunately it is not to be attained by an act of Congress. More specific than this

rather broad statement of the object of the bill, its purport is to create a national institute of health, under the jurisdiction of the Surgeon General of the United States Public Health Service which has for its purpose the acceptance of gifts for the study of disease, the maintenance of fellowships in scientific research and the encouragement of investigative problems. At the hearings of the Sub-Committee of Commerce, many distinguished gentlemen spoke on the advantage of having the Government enter into the field of medical research, and to further this with an appropriation of \$10,000,000. There is no question that such an appropriation would be of gain to research in medicine. It is decidedly an open question, however, if the Government should continue to enlarge and to widen its present-day activities of a socialistic nature. The paternalism of the Government, as exhibited in so many different directions at the present time, is a far cry from the democratic simplicity of the Jeffersonian era. To many men at least it seems time to cry a halt to the increasing tendency of the central Government to take over the management of everything or anything, no matter whether it deals with business, commerce, law, finance, agriculture, medicine, or other phases of the everyday life of the citizen.

THE DAMAGED HEART AND ANESTHESIA.

A subject of mutual interest to the physician and to the surgeon is how to estimate the risk and how to care for an individual with a damaged heart who requires an operation. Often this question is answerable only in one way because the operation is necessary to save the patient's life, and the possible deleterious effect on the heart must be summarily dismissed; but another query arises in this latter case which best can be answered by proper team work between the interested physicians, as to what pre-operative and post-operative protective measures are advisable under such circumstances. The first of these problems is

further complicated by the factor of heart failure in a certain proportion of cases. Marvin* writes that this consideration is of primary importance. If a patient with signs of heart disease is able comfortably to carry on the activities of a normal life he does not have heart failure, and the so-called stress and strain of operation, which truthfully throws but little load on the heart, will not effect that individual. If early congestive failure is possibly present as shown by the history of dyspnea on exertion, the two pillows at night story and the afternoon pretibial edema, plus rales at the lung bases, it would be wise to administer digitalis in full therapeutic doses. In patients with advanced congestive failure naturally operation would be performed only under the most urgent circumstances, but even with these patients, rest, digitalis and diuretics will carry far. Digitalis, as a routine measure, in the average dose, has very little value and should not be given as a routine preoperative measure.

The choice of the anesthetic is of importance, but of greater importance is the selection of the proper person to administer either ethylene or nitrous oxide. With these anesthetics at hand and a skillful anesthetist the patient will sink off into a pleasant, dreamless slumber instead of exhausting the cardiac reserve with a prolonged combat, the like of which no sane physician would countenance under any circumstance in a patient with a damaged heart.

The fear of operating upon a patient with heart disease has largely passed. Proper care before the operation and afterwards will prevent serious results in most cases, but always the surgeon should bear in mind the possibility of sudden death, even at rest, of a patient with syphilitic heart disease with aortic insufficiency, complete heart block, and angina pectoris. When operation is advisable upon such patients, they and their families should be warned of this possibility by the surgeon as a measure of self-protection.

*Marvin, H. M.: The heart during anesthesia and operative procedures, *New England J. Med.*, 199:547, 1928.

HOSPITAL STAFF TRANSACTIONS

TRANSACTIONS OF THE PRESBYTER- REAN HOSPITAL CLINICAL SOCIETY.

The regular monthly meetings of the society were resumed September 27. The routine business was attended to in the usual manner, and several interesting deaths were discussed. Among the latter was one by Dr. Loria. The patient had had symptoms pointing to a severe parenchymatous nephritis probably arising from mercurial poisoning. He developed a bloody watery diarrhea and complete anuria. His blood chemistry showed the following: (1) total non-protein nitrogen 400 mg., (2) uric acid 6.1 mg., (3) creatinine 7.5 mg., and the carbon dioxide combining power of the blood 106.5 volume per cent. No urine could ever be obtained for an urinalysis. The red blood cell count was 2,925,000; and the total whites 21,000. The patient was critically ill over a period of about five days, before dying.

Dr. D. C. Browne presented an interesting survey of some recent clinical work, undertaken by him, on a method for the treatment of oxyuris vermicularis infections. According to him it has been shown that this parasite is particularly susceptible to even slight elevations in temperature. Heat kills them off very rapidly. As the result of this Dr. Browne has devised a method of introducing very warm saline into the colon per rectum. The heat and quantity is ingeniously regulated by a mechanical device. The patients are given from one to three of these treatments—as the necessity may arise—and his results have been very gratifying. He reported a series of cases, and showed—by comparison—that this form of treatment is better than many of the other methods.

A case of multiple sclerosis was presented by Dr. H. R. Unsworth, in whom a diagnosis of cerebellar-pontine tumor had been made elsewhere. The patient was a married woman 32 years of age. She presented symptoms, which to the unwary ap-

peared typical of a cerebellar-pontine tumor. However, there were enough unusual findings in the history and physical examination to warrant further study—which Dr. Unsworth proceeded to do. Operation was deferred; and the patient examined several times and by several neurologists, etc. The existence of any intra-cranial tumor was completely ruled out and a definite diagnosis of multiple sclerosis made.

Dr. Unsworth explained that this case taught him rather forcefully two important points, i. e., “first that it is always wise not to accept a diagnosis without a very careful history, routine laboratory work, and repeated examinations; because oftentimes our conclusions are misleading. Secondly, the symptomatology in this case was rather unusual and interesting.”

FRANK L. LORIA, M. D.

STAFF MEETING

SOUTHERN BAPTIST HOSPITAL, OC- TOBER 9, 1928.

1. Presentation of a case by Dr. Rena Crawford—Discussion.
2. Presentation of a case by Dr. Oscar W. Bethea—Discussion.
3. Presentation of a case by Dr. T. H. Oliphant—Discussion.

Dr. Rena Crawford presented a little patient of hers, who showed some leukoderma on his back. The child had been perfectly normal all his life. On January last, he became ill with a mild attack of chicken-pox. The mother did not call in a doctor as the child experienced no complications. In May, the child was brought to Dr. Crawford's office and it was found that he had leukoderma on his back. Wherever there had been a chicken-pox mark, there was a white patch. Dr. Crawford said that she had never seen a case like this before. Dr. Menage, who was consulted, said that he had often seen leukoderma from traumatic injuries, especially in negroes, but that he had never seen it from chicken-pox.

DISCUSSION.

Dr. Oscar W. Bethea asked if there was any history of these chicken-pox spots having become secondarily infected from scratching.

Dr. Crawford replied that she thought the spots were not secondarily infected as she thought the mother would have become frightened and called in a doctor, and she had not done so.

Dr. C. W. Allen said that a good many years ago, in talking to Dr. Isadore Dyer, he grouped leukoderma and chloasma as probably of a similar origin and suggested as a remedy a diet of beans, particularly applicable to chloasma. This was before the time of vitamins. He was asked how much beans should be eaten and said just to keep on eating beans as they had been known to produce improvement. Since then, we have learned of the high content of peas, beans and all legumes in vitamins. Dr. Dyer did not know why, but he had seen benefit from the use of beans. It may be that leukoderma would yield to the same remedy as did liver spots since he thought that they had a similar origin.

Etiological Diagnosis of Asthma. Dr. Oscar W. Bethea.

This man, Mr. J. B. shows some rather interesting features that cause me to feel that we would be justified in presenting him at the staff meeting.

He was admitted with a diagnosis of asthma. I understand that his case had been regarded as true or spasmodic asthma, in contradistinction to symptomatic dyspnea, such as is frequently encountered in cardiac, pulmonary, renal and some other diseases.

He came here for two purposes, first, to secure symptomatic relief and second, in the hope that he could be permanently relieved of his chronic asthmatic tendency.

I will not burden you at this time with any detailed discussion of his general condition, or of what we have done to give him symptomatic relief from the acute attack. In the limited time available, I will simply outline the measures that we have employed to find the cause of his trouble, in order that we might apply specific therapy. Having established that the case is true asthma, there are several avenues that may lead to information that will aid us in establishing an etiological diagnosis. These include an analysis of the history, the skin test, the laboratory investigation, particularly the bacteriological study, and the therapeutic test. Of these we consider the analysis of the history of major importance, and it strikes me as rather interesting that this phase of the investigation of these cases should be so little emphasized in medical literature.

For the particular purposes suggested, we have investigated the history of this patient as follows:

The Age of Onset: It has been fairly well demonstrated that, as a rule, the asthma beginning in infancy is of gastro-intestinal origin; that beginning in early and middle adult life is usually the result of respiratory irritants, particularly pollens; that beginning in old age is usually the result of bacteria; and in practically all cases where asthma persists bacteria sooner or later becomes a factor. This patient was past sixty when he had his first attack; we consider this as evidence indicating the possibility of having the bacterial type of the disease.

The Effect of Season: When an individual has asthma at all seasons, it naturally indicates that the attacks are the result of factors that are operative at all seasons of the year. We can, therefore, safely exclude pollen as the only cause. If the attacks were only during the spring, summer, or fall, we could practically convict pollen as the offending material. This man has trouble throughout the year.

Effect of Location: When an individual has asthma at one place and not at another, it means that the attacks are the result of factors that are operative at one place and not at another. These cases are usually the result of pollens or other inspired material, such as the emanations from animals. This patient suffers consistently from asthma wherever he goes. The known causes of asthma which are most apt to be responsible for a case of this kind are those which are operative irrespective of location, such as food or bacteria. The patient carries his own organisms with him and location has little influence except in special instances, such as some of the high, dry locations where respiratory diseases are more or less uniformly benefitted.

The Presence of Other Evidences of Acute Respiratory Infection: The asthmatic attacks that result from pollen, emanations from animals and other related factors are not associated with fever or other findings of an infectious process. A food asthma may be associated with fever and cutaneous eruption, but it does not usually carry the evidences that would indicate an infectious process in the respiratory tract. When the cause of the asthmatic seizures is bacterial, we are very apt to find all the signs and symptoms of an acute respiratory infection. This patient presents with his attacks all of the phenomena usually associated with an infectious process.

What Will Precipitate an Attack: Many patients are conscious of some special factor that will precipitate an asthmatic seizure. For example, I have one patient who knows that drinking cow's milk

will promptly bring on an attack. Another patient knows that inhaling the dust from wheat flour will precipitate his trouble. This patient before us is not conscious of any particular offense that will precipitate a paroxysm, except that they seem to be associated with what is usually termed a common cold. The analysis of the history of this case has rather convinced us that he has the bacterial type of bronchial asthma. The skin tests have given no reliable information. A bacterial study is now being made. We have had no opportunity as yet, to apply the therapeutic test of immunization against his own bacterial flora with autogenous vaccine, but we hope that in the near future, we will see him materially improved.

DISCUSSION.

Dr. R. H. Potts said that about six years ago, a young doctor came to him suffering with asthma, having experienced a great deal of trouble in getting through medical school and in fact, had thought several times of giving it up altogether. He attributed his asthmatic attacks to chicken feathers or goose feature. Dr. Bethea was called in consultation on this case and on going thoroughly into his history, found that his asthma had started in childhood. After studying his case, he was given a whooping cough vaccine which relieved. Dr. Potts said that he had seen the patient just recently and that he had had no more attacks.

Dr. J. Holmes Smith said that during the last six months in the clinic at Charity Hospital, all patients who have presented symptoms of asthma, have been taken to the fluoroscopic room and examined with lipiodol. In a certain percentage of cases, and they are probably of the bacterial type, the patient, as a rule, experiences great benefit from the use of lipiodol. One lady who had been using morphin for some time, following several injections of lipiodol, was relieved to such an extent that morphin was not necessary. The method of administration, as sponsored by Dr. Oeschner, is comparatively simple. The patient is brought to the clinic and given three, four, five, and six doses of lipiodol and generally with that, experiences pronounced relief.

Dr. J. P. O'Kelley said that we often have asthmatic symptoms in acute infections of the ethmoidal cells in children particularly, and in cases which have very marked stenosis, we have asthmatic symptoms, not only in children but in adults also. Where there is a decided infection of the ethmoidal cell or any of the sinuses in children, after clearing up those infections, the asthmatic symptoms disappear. He recalled the case of a little girl who came to see him a few days ago very badly involved from double ethmoiditis. After using the suction and cleaning treatment, she was relieved after a few treatments, of her asth-

matic condition and did fairly well until she caught cold again and had to go through the same treatment. Removal of her tonsils and adenoids has lessened her susceptibility to colds and she is now relieved.

Dr. Allen asked Dr. O'Kelley if upper respiratory infections often caused this type of asthma.

Dr. O'Kelley replied that he had not come in contact with any cases of that kind at all. In chronic sinusitis, a patient does not, as a rule, have much occlusion of the anatomy. He may have a deviation of the septum that may block up one side of the septum and they do often complain of an asthmatic condition. Where there is no particular occlusion, he has not come in contact with any such cases except with purulent sinusitis.

Dr. Rena Crawford said that she was interested in the fact that in most children asthma is of gastro-intestinal origin. When a child develops asthma before the age of four or five years, he generally gets over it, probably due to his developing an immunity to the causative food. An attack of asthma, however, is usually preceded by rhinitis or bronchitis which would lead one to think the individual attack was due to some nose and throat infection rather than to a food.

She said she would like to know if autogenous vaccine, when used, gave much help.

Dr. Bethea, in closing, said that as asthma was such a large subject, he had only been trying to emphasize the matter of case history and etiological diagnosis. In reply to Dr. Crawford's query, he thought the result sufficiently encouraging in a large enough percentage of cases to justify carrying out these measures.

In Dr. Potts' case, that of the medical student, the patient had gone the gamut of diagnosis and treatment apparently without benefit and the diagnosis in this case had been reached by an analysis of his history, pure and simple. He got this in the student's history, that what had precipitated the attacks was whooping cough at about twelve or thirteen years of age. He had never had any symptoms before that, and working on this point alone, he was given the pertussis vaccine. He was given a moderate dose and had such a reaction as to confine him to bed for about a week. The very fact that the vaccine precipitated a violent seizure showed that it was probably that to which the patient was sensitized. He was started then with small doses, increasing in amount until several billion were given each time and he was completely and permanently relieved.

Dr. Bethea said that lipiodol was being used in his service at Charity Hospital. A few years ago, he started keeping two pollen test sets—one here

and one at the Charity Hospital and had encouraged the internes to use them. The results were not very encouraging.

Acute Hemolytic Streptococcal Mastoiditis with Manifold Complications and Recovery. Dr. T. H. Oliphant.

This case, that of a young man eighteen years of age, admitted to the hospital June 21, 1928, with acute hemolytic streptococcal mastoiditis complicated by a general streptococcal septicemia and acute endocarditis, multiple arthritis, and irritative symptoms referable to the central nervous system, was considered extremely interesting from two standpoints, namely, the severity of the primary infection with complete recovery, and the results obtained with arthrotomy of the knee as originally described by Willem during the world war and subsequently modified and elaborated on by many other workers.

In order that a better understanding of this case may be had, I think it well that we go briefly into the history. The patient was first seen on July 21, 1928, with a temperature of 104°, pulse 130, and respiration 28, complaining of severe pain and swelling behind the right ear with pain on movement of all joints. He gave the following history of his condition up until that time:

About six weeks previously, after diving into a swimming pool, he experienced a severe pain in the right ear after which he was unable to keep his head under the water. He had a sensation of something having ruptured his ear. A few days later, he consulted Dr. Raymond Hume in regard to the discharge which had developed from this ear. This cleared up after ten days or two weeks but patient did not feel entirely well. About twenty-four hours before I saw him he began to have the pain behind his right ear and pains in his joints and chills with high fever.

Past history: Had the usual childhood diseases with no complications. He was told that he had some heart trouble and ought to stay in bed when quite a young boy, but never suffered seriously from this. No operation; no history of luetic or gonorrheal infection.

Family history: Nothing in family history of any consequence.

Social status: Patient is a member of the senior class at Delgado Trades School; his habits are good and there are no gross irregularities.

Physical examination at this time revealed a white male of 18 years, lying in bed, acutely ill and suffering severely with pain. He was rational and answered questions well.

Head and neck: No irregularities of scalp. Complains of severe pain around the right mastoid region and that portion of the face immediately anterior to the right ear. There is a slight amount of swelling in this area. He complains of severe headache, mostly frontal. There is a definite disturbance of the 7th nerve, producing a partial right facial paralysis. There is no disturbance of the sensory function in this area; no discharge from either ear. Throat negative; tonsils and pharynx mildly injected.

Eyes: Negative except for disturbance in right due to partial right facial paralysis. Pupils react to light and accommodation.

Nose: Negative.

Neck: Negative.

Thorax: Bilaterally symmetrical. Chest expansion free and equal; respiration rapid (about 30 per minute). No abnormal pulsations; no abnormal breath sounds or rales detected.

Heart: Apex impulse was felt and seen in the 5th interspace well within the nipple line. On percussion, the left border was within the normal limits; rate 128 per minute, regular and rhythmic; no murmurs were heard. B. P. 120/76.

Abdomen: Essentially negative except for slight pain on deep palpation.

Extremities: Hands and elbows somewhat rigid. Complained of marked pain on slightest motion. Both lower extremities were spastic and slightly flexed. There was slight swelling of left knee and left ankle. Knee jerks were slightly exaggerated and there was a suggestion of a positive Kernig sign.

Laboratory examinations:

7-21-28—X-ray examination showed the right mastoid to be denser than normal.

8- 9-28—X-ray examination of the left knee was negative for bone pathology.

Blood:

7-21-28—W. B. C., 12,500; S. M., 12; L. M., 8; N. 80.

7-25-28—R. B. C., 3,880,000; Hg., 70%; W. B. C., 29,000; S. M., 9; L. M., 6; N., 85.

7-27-28—R. B. C., 3,800,000; Hg., 70%; W. B. C., 26,000; S. M., 12; L. M., 6; N., 82.

8- 3-28—R. B., 3,030,000; Hg., 60-70%; W. B. C., 13,500; S. M., 8; L. M., 10; N., 78; B. 4.

8- 8-28—R. B. C., 2,895,000; Hg., 65%; C. I., 1; W. B. C., 15,750; S. M., 10; L. M., 8; N. 80; B. 2.

8-13-28—Hg. 65%; W. B. C., 20,000; S. M., 24; L. M., 0; N., 76; E., 0.

Blood culture:

- 7-25-28—Blood culture—negative after 72 hours.
- 7-29-28—Culture negative after 72 hours.
- 7-30-28—Fluid from knee: Smear and culture show gram positive cocci occurring in chains.
- 8- 3-28—Blood culture negative after 72 hours.
- 8-15-28—Fluid from knee: Smear shows gram positive cocci occurring in chains; culture negative.

Operations:

- 7-21-28—Mastoidectomy.
- 7-25-28—Transfusion.
- 7-27-28—Tranfusion.
- 7-28-28—Transfusion.
- 7-30-28—Arthrotomy.
- 8-13-28—Arthrotomy.

After admission to the hospital, a roentgen-ray was made which showed an increased density in the right mastoid cells. An extensive mastoidectomy was done by Dr. Raymond Hume under general anesthesia, the whole of the mastoid region being found to contain engorged and spongy bone described as being typical of acute hemolytic streptococcal mastoiditis. His immediate post-operative condition was good but for the next two or three days, patient continued to run a septic type of temperature accompanied by profuse sweats and his general condition was far below what we had expected. Transfusion was resorted to on the 25th, four days after operation with very satisfactory results and his condition seemed to be improving slightly during the next day. Blood culture at this time was negative after seventy-two hours but the patient had every indication of a general streptococcal septicemia. He was seen in consultation by Dr. R. H. Potts, who gave us the following report: "General septicemia; multiple infectious arthritis; focal necrosis of the liver; endocarditis." He suggested that we proceed as we had in the past and administer salicylates for pain and possible therapeutic value. Patient did not improve after the first day and transfusion was again resorted to on the 27th, two days after the first transfusion and again on the 28th. After the third transfusion his condition seemed to improve but the left knee became swollen and markedly distended, precluding the possibility of any motion. Fluid from the knee by aspiration on July 30 showed smear and culture to reveal gram positive cocci occurring in chains. An arthrotomy was done, a free incision being made through the skin and into the joint capsule. The joint cavity was irrigated with about three

or four gallons of warm normal saline which removed a large quantity of purulent material and fibrinous exudate. The skin was closed leaving the opening in the capsule for drainage. There was considerable drainage for about ten days through the skin wound, after which healing took place. The knee began a second time to swell. Aspiration again revealed a large collection of material and on August 13, a more radical arthrotomy was done on the opposite side of the knee and the capsule sutured to the skin margins to prevent too early closure. This drained nicely and on discharge from the hospital, September 3, 1928, the wound had almost completely healed by granulations from below. On second consultation with Dr. Potts on 8-14-28, he found evidence of myocarditis in addition to his findings at previous examination. On 8-9-28, X-ray examination of the knee was made which revealed no evidence of bone pathology. After second arthrotomy, temperature gradually came down to normal, patient leaving hospital on September 3, greatly improved.

After being discharged from the hospital, patient continued to run slight temperature, ranging from 99-100, and upon examination was found to have a large abscess about the size of a baseball in the gluteal region, which was evacuated, cavity being packed with stanoxyl ointment. Healing was complete in six or seven days.

About two weeks ago, patient continued to present symptoms of cerebral irrigation which had been more or less constant since the beginning of his illness, being manifested by a tremor in his hands, increased knee jerks, especially on the right side, and an ankle clonus which caused me to have Dr. Connely to see him in consultation and I have asked Dr. Connely to give his findings.

Even though Mr. A. is here tonight for your observation, apparently well, having recovered complete function of his left knee joint, being able to walk without even a limp, he still has a myocardial deficiency and I feel that he should remain in bed for at least another two or three months. He is back attending his classes at the Delgado Trades School against medical advice.

DISCUSSION.

Dr. Allen said he had had a case with some similar features. He was called by Dr. Blackshear some four or five months ago to see what could be done in a case of septicemia following a mastoidectomy. Dr. Blackshear had been called to Meridian to see the patient, a child about five years of age, who was later brought to New Orleans. His temperature ranged from 104-106. One of the first cultures made showed culture dishes to be thickly speckled with *Streptococcus hemolyticus*. When the administration of

an anti-streptococcal serum was attempted, the patient did badly and it was abandoned. It was decided to give very large doses of mercurochrome to the point of tolerance. He was given doses every other day. Dr. Allen said he did not remember how many c.c.s he was given but he was given all he could stand and there was always a kidney reaction with definite albumin and casts. The boy got well with no further complications. It was interesting to watch the blood picture and see the streptococcus disappear under treatment in about ten days. However, he still had chills and fever which continued for about three weeks afterwards. It did not look like he had a chance but by continually hammering away, the little fellow responded to treatment and is now perfectly well.

Dr. R. H. Potts said that he had seen this young patient while he was in the hospital about his heart condition and that he was a most complete picture of septicemia—everything was septic. He was an extremely sick individual and he did not expect to see him get well. The entire endocardium was involved and still probably is. An electrocardiogram was not made on this patient on account of the expense. Dr. Potts said that he felt, regardless of the expense, an electrocardiogram should be procured.

Dr. E. McC. Connely said that he had seen the patient about two weeks ago and at that time he still had evidence of a definite irritation although the facial paralysis on the right side had cleared up.

Dr. Potts asked Dr. Connely if there was anything akin to chorea in the tremor exhibited by the patient.

Dr. Connely replied that the patient had a quite marked ankle clonus; the knee jerks were especially hyperactive and he showed every evidence of a residual irritation and he thought that this would account for the tremor.

Dr. Oliphant, in closing, said that repeated blood cultures failed to reveal any growth but he feels and is sure that those who saw this case with him are of the same opinion, that this was definitely a case of streptococcal septicemia. The only positive cultures found were made from the fluid aspirated from the left knee. In regard to methods used in combatting this general septic condition, only transfusions were depended upon for this purpose, no anti-streptococcal serum or mercurochrome being used.

Dr. Oliphant said that he wanted to thank Dr. Potts, Dr. Connely and Dr. Allen for their discussion and also Dr. Gray for the beautiful manner in which the case history was worked up and read.

STAFF MEETING VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL.

September 10, 1928.

SPECIAL CASE REPORTS.

Carcinoma of Gallbladder, with Clinical, Operative, and Autopsy Findings. Dr. A. Street.

The patient, a white male, aged 78 years, had had jaundice continuously for six weeks prior to his admission. The onset of the illness had been abrupt, with a chill and high fever. The fever had occurred at intervals since. There had been no pain of any kind. There were the additional symptoms of anorexia, loss of weight and strength, constipation, and pruritus. The physical examination had shown a palpable firm smooth liver border extending two inches below the right costal margin and extending across the epigastrium. There were also a marked anemia, emaciation, jaundice, and edema of feet and ankles.

The blood count showed a hemoglobin of 62 per cent with a total erythrocyte count of 2,228,000. The leukocytes were 18,600, neutrophils 74 per cent. Wassermann negative; icterus index, 50. Gastric analyses: Total acidity, 24; free hydrochloric acid, 0.

Roentgenograms showed a deformity of the duodenal cap, otherwise negative.

Following a diagnosis of obstructive jaundice, probably due to a malignant growth in the head of the pancreas, operation was performed under local anesthesia. There was found a stony hard growth in the gallbladder just proximal to the dome of the fundus, and another mass between this growth and the common duct region. No curative or palliative operation was possible, and a drain was left in the gallbladder. The patient died three days later.

Autopsy showed the growth in the fundus to be annular with a small lumen in its center. The other mass was found to consist of numerous facted stones.

The pathological diagnosis was: Adeno-carcinoma of gallbladder, common duct, liver, adjacent connective tissue, and lymph nodes. Chronic cholecystitis, cholelithiasis, cirrhosis of liver, chronic hepatitis.

The case was of interest because:

1. It is a case of carcinoma of the gallbladder in a male. Three-fourths of such cases occur in females.

2. There was no previous history suggesting gall stone disease. Such symptoms usually pre-

clude the development of the symptoms of carcinoma.

3. The symptoms and presence of cancerous obstruction of the common bile duct were accompanied by septic infection in the bile ducts, with its symptoms.

The case points out the necessity for early diagnosis in gall stone disease and their prompt removal.

Dr. L. S. Lippincott discussed the case.

Unusual Hemorrhage Following Adenoidectomy.
Dr. G. M. Street.

E. M., a white female, aged 10 years, was admitted to hospital August 15, 1928.

The examination was essentially negative except for chronic disease of tonsils and marked hypertrophy of adenoids, with evidence of partial obstruction of naso-pharynx. Tonsil and adenoid operation was advised because of repeated attacks of acute tonsillitis.

Coagulation time, June 20, was two minutes; bleeding time instantaneous. On day of operation coagulation time was three and a half minutes; bleeding time instantaneous. The leukocyte count and urinalysis showed nothing remarkable.

Tonsillectomy and adenoidectomy was done without anything unusual taking place. Reacted in 30 minutes and seemed to be in excellent condition. Late in the afternoon she complained of feeling a lump in her throat. Examination showed a large clot filling the post-nasal space; tonsillar fossae dry. The hemorrhage was controlled after using other measures of pack, which was removed at the end of 48 hours. There was then no bleeding for another 48 hours, when bleeding again began. The post-nasal pack was replaced and a transfusion of 300 c.c. of citrated blood was given. This pack was removed at the end of 12 hours as it was believed that the transfusion would take care of any future bleeding.

On the third day following the blood transfusion, the patient again began spitting blood. A clot was removed several times during the next twelve hours and various styptics applied locally until the oozing from the fossa was checked.

From this time, no further trouble was encountered.

The case was discussed by Drs. L. S. Lippincott, A. Street and C. C. Thompson. It was suggested that clot retraction and prothrombin time might have been of value in this case.

Aneurism of the Digital Artery with Operation.
Dr. J. A. K. Birchett, Jr.

Marie A., a colored female, aged 33 years, complained of swelling on the back of the left hand and numbness of her fingers.

While raising a window two weeks ago, the sash slipped and came down on the left hand, causing severe pain and numbness for several hours. About a week ago she noticed a swelling on the back of the left hand, and numbness, which had disappeared, now returned, most marked in first and second fingers. Patient stated she had never been confined to bed for more than a week in her life but had been treated for syphilis two years ago.

A small pulsating tumor, size of a large olive was seen back of the left hand in the region between and towards the bases of the second and third metacarpal bones. When this tumor was collapsed by pressure, it would immediately refill and pulsate when pressure was relieved. If the radial artery was occluded by digital pressure after tumor was collapsed, it would not become distended until radial compression was released. Diagnosis: Aneurism of the palmar branch of the deep palmar arch or of digital artery, a branch of the palmar. Wassermann test positive; urinalysis, leukocyte and differential counts were not remarkable.

Operation: Incision was made over tumor; sac was identified and removed without difficulty from under extensor tendons and from between metacarpal bones. Aneurism was sacculated and apparently from the proximal portion of the second digital artery. After sac was removed, there was an opening in the artery one-eighth of an inch in length. Vessel was ligated with fine silk proximal and distal to this opening and the wound closed. Recovery is complete and flexion and extension of the hand is possible without pain or discomfort.

Calculus of the Bladder. Dr. J. A. K. Birchett, Jr.

P. H., a white male, aged 59 years, a construction foreman, complained of pain on urination, with frequency and dull pains in lower abdomen and rectum. For past two or three years has been troubled with nocturia, three to five times. Gradually increasing pain and straining at end of urination; no sharp pains, but dull sense of fullness in perineal region. For past month he has been passing blood when straining and found it difficult to empty bladder.

A No. 20 F. sound was passed into bladder with no resistance in urethra. On entering bladder sound clinked against some hard substance, which was thought to be a stone. Roentgenogram showed calculus in bladder, size of small lemon.

The blood examinations were negative although urine showed evidence of nephritis.

Operation: The supra-pubic route was decided upon and the calculus removed under general anesthesia. Supra-pubic drain was removed on fifth day and at time of discharge, 11 days after operation, fistula had closed and patient was free of symptoms except for slight burning on urination and slight frequency.

Preoperative preparation consisted of washing out the bladder twice daily with warm boracic acid solution through an indwelling catheter. At time of operation urine was practically free of pus and mucus. The renal function was carefully observed to avoid a possibility of uremia developing. The day before the operation the urea nitrogen was 12.1 mg. and the creatinine 1.6 mg. per 100 c.c. of blood.

The calculus and roentgenograms were exhibited.

Discussed by Drs. G. M. Street, S. W. Johnston, A. Street.

Acute Anterior Poliomyelitis with Paralysis.
Dr. L. J. Clark.

Mrs. C. E. R., a white female, aged 23 years, was seen on account of loss of use of legs three weeks previous to admission, following a febrile attack associated with headache, nausea and vomiting. About four or five days after the beginning of illness patient attempted to get out of bed and suddenly her legs gave way with her. Since this time has had no use of her legs and very slight motion in right leg. There is no pain and there has been no fever since about six days after the beginning of illness; no loss of bladder and rectum control.

Physical examination: The abdomen showed evidence of pregnancy. There was loss of motor control of both legs, flaccid type; no disturbance of thermal or tactile sensation. There is some slight atrophy of muscles of legs, more marked in the left. Pupils normal. Knee jerks sluggish on right side; barely present on left side.

A spinal puncture showed a clear fluid with leucocyte count of 18. Differential count, small mononuclears, 28 per cent; large mononuclears, 28 per cent; polymorph. neutrophils, 24 per cent; globulin very slightly increased; protein, very slightly increased; colloidal gold reaction negative. Blood and urine were entirely negative.

The unusual features of this case are the age and the fact that she is pregnant. The problem of whether she should continue her pregnancy or not was considered and it was decided that in view of the fact that she was improving that she

should not be interrupted. This case appears to be a sporadic case of poliomyelitis. Two nieces who have been with her a great deal developed what appeared to be in one a typical acute poliomyelitis with sudden paralysis of the respiratory muscles and death, and in the other a typical meningitis with gram negative diplococci found in the spinal fluid. This later patient died in spite of persistent serum treatment.

The prognosis in this case is good. Since being in the hospital she has regained use of her legs to the extent that she walks by herself now and that in a period of one month. The spinal fluid cell count was low, which also is in favor of a good result.

Discussed by Drs. A. Street, G. M. Street, Lippincott and S. W. Johnston.

Cellulitis of Forearm. H. H. Johnston.

A colored male, aged 43 years, entered the hospital complaining of tenderness and swelling of right arm following a bite by a spider on the upper third of the right forearm. There was considerable itching and the area was scratched.

The examination showed the right forearm and hand are moderately swollen, showing pitting edema. There is a small indurated area at site of bite. The epitrochlear and axillary glands on the right are swollen.

Blood shows erythrocytes 4,400,000, hemoglobin 72 per cent. There were 28,000 leukocytes, neutrophils 85 per cent. Sedimentation rate much accelerated.

After 12 days of active treatment a fluctuating mass appeared. On opening a large quantity of yellowish pus was evacuated. This was found positive for *Staphylococcus aureus* and streptococcus. After four days the discharge almost completely ceased and the temperature fell to 99. He was dismissed from the hospital six days later free of discharge and with no systemic symptoms.

Discussed by Drs. S. W. Johnston, A. Street, and L. S. Lippincott.

Some Notes on the Interpretation of Blood Findings. Dr. Leon S. Lippincott.

The blood is composed of formed elements—red corpuscles, leukocytes and blood platelets, floating in a complex field, the plasma. The circulating leukocytes are distinguished into two main types: (1) those containing granules in their cytoplasm—the polymorphonuclear neutrophils, eosinophils, and basophils; and (2) those without granules—the lymphocytes and monocytes or large mononuclears. The granular leukocytes, the red cells, the blood platelets, and probably the mono-

cytes are produced in the bone marrow; the lymphocytes are produced in lymphatic tissue throughout the body.

Leukocytosis or increased leukocytes in the circulating blood is a reactive process, and occurs with most infections at some stage. Most infections are accompanied by an increase in the neutrophils; at the same time there is a reduction of eosinophils. Numerous "indices" have been brought forward in an effort to interpret leucocytosis. Of these that of Schilling is simple and practical and has for its basis the determination of the percentage of immature as well as mature neutrophils in the differential count. The appearance of immature forms of neutrophils in the circulation is spoken of as "a shift to the left." A number of sample "hemograms" given by Piney in his recent work on hematology were shown and their application explained in such conditions as septic arthritis, suppuration, peritonitis, mild catarrhal inflammations, cerebral abscess, subphrenic abscess, recovery from infection, exophthalmic goitre, and pregnancy. It was shown that in fatal infections the immature forms of neutrophils may predominate, and that in certain conditions the

Schilling index gives a much clearer insight into the true condition of the patient than do the temperature, pulse, and clinical findings. The index may be prognostic as well as diagnostic.

In infections and inflammatory conditions, a comparison of the total leukocyte count with the neutrophil percentage will often give more information than either alone. According to Todd and Sanford the percentage of neutrophils represents the severity of the infection, or, more correctly, the degree of toxic absorption; while the total count represents the patient's power of resistance. The Gibson chart to express this comparison graphically was demonstrated. In this chart, the total leukocytes are given at the left and the percent of neutrophils to the right. A line is drawn from one to the other on a scale. An ascending line from left to right indicates an unfavorable prognosis in proportion as the line approaches vertical. All fatal cases show a rising line. A descending or horizontal line indicates a favorable prognosis.

A series of Gibson chart interpretations of blood findings in acute appendicitis was presented on the screen.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the past month besides the regular meeting of the Board of Directors one quarterly executive meeting and one regular scientific meeting were held.

At the quarterly executive meeting aside from the routine business an amendment to Article 9 of the By-Laws was proposed whereby the Delegates to the Louisiana State Medical Society would be elected under the same circumstances and on the same date as the Officers of the Society instead of a special election occurring at the second scientific meeting in November. This amendment was defeated.

At the regular scientific meeting the following program was presented:

The Place of Ethylene Anesthesia in Surgery:
Report of Fifteen Hundred Operations with this Anesthetic Alone.
By:.....Dr. James T. Nix.

Discussed by Drs. Ansel M. Cline, A. C. King, J. A. Danna, J. E. Landry, E. L. King, H. L. Kearney, Urban Maes, H. W. Kostmayer and closed by Dr. Nix.

Splanchnic Analgesia.
By:..... Dr. Emmett L. Irwin.
Discussed by Drs. M. J. Gelpi, Alton Ochsner, Emile Bloch and closed by Dr. Irwin.

The Practical Laboratory Diagnosis of Fungus Infections of the Hands and Feet.
By:.....Dr. Foster M. Johns.
Discussed by Dr. Van Studdiford and closed by Dr. Johns.

This office wishes to call attention to the membership that a fire proof safe has been purchased in which all of the valuable papers and transactions and some books which would not be replaceable, have been placed in it for safe keeping.

The Secretary's office has been in communication with the daily papers of this city in an endeavor to stopping the practice of inserting the attending physician's name in the paid birth notices which appear in the daily press. This practice has been reported by the Judiciary Committee and voted by the Society as being directly unethical and in violation of the Code of Ethics of the American Medical Association.

The fourth quarterly premium on the group insurance has been paid, there now being 240 members holding policies.

Many physicians have changed their office addresses and some of these changes have not been reported to this office. This delays the delivery of meeting notices, journals and etc. and we would appreciate very much your notifying this office of any changes.

All of the members have been requested for their photographs to appear in the coming edition of the History of the Orleans Parish Medical Society to be edited by Dr. A. E. Fossier. If you have not done so kindly send in your photograph and check at once.

The following Doctors have been elected to Membership:

Active Members—Drs. James E. Daboval, Lloyd J. Kuhn, Hans Schroeder, Joseph W. Reddock and Joseph T. Scott, Jr.

Reinstated—Dr. J. W. Rosenthal.

Interne Member—Dr. John K. Bullock.

THE PATIENT PAYS THE PIPER.—Better organizations, however, can be perfected for the more economic care of the sick. Many of the indigent sick and practically all of those who are not indigent, but cannot stand the extra financial load are now cared for at the expense of the philanthropic subscribers to hospitals and the physicians who serve these hospitals. No matter to what degree a hospital may be a charitable insti-

TREASURER'S REPORT

Actual Book Balance, 8/31/28.....	\$1,448.07
Receipts during September.....	667.61
	<hr/>
	\$2,115.68
Expenditures	\$ 430.63
	<hr/>
Book Balance: 10/1/28.....	\$1,685.05

LIBRARIAN'S REPORT

Forty-four books have been added to the library during September. Of these 32 were received by binding, 6 by gift, 1 by purchase and 5 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is herewith appended.

Gifts of journals, books and reprints have been received from Dr. J. H. Musser, Dr. Joseph Hume, Dr. P. T. Talbot, Dr. E. H. Walet and Dr. Roy E. Van Wart. Dr. Van Wart's gift comprises hundreds of journals and books and will form a most valuable addition to the library in the department of nervous and mental diseases.

NEW BOOKS.

Rockefeller Foundation—Annual Reports, 1926-1927.

Whitney—List and Classification of Diagnoses. 1928.

Reid—Heart in Modern Practice. 1928.

Strecker and Ebaugh—Practical Clinical Psychiatry. 1928.

Wright—Muscle Function. 1928.

Sheehan—Plastic Surgery of the Orbit. 1927.

Pende—Constitutional Inadequacies. 1928.

Meyer and McCormick—Studies in Scurvy. 1928.

H. THEODORE SIMON, M. D.,
Secretary.

tution, practically every worker in it from scullery maid to superintendent is recompensed for service except the nurse, who is in training, and the staff physician. Thus the cost of the care of the needy sick is borne by two small groups—the philanthropists and the medical profession. In all fairness this burden should be distributed among the taxpayers of the nation, just as is the bill for our public-health activities.—Garland, Joseph: *The Independent*, Sept. 15, 1928, p. 255.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

MEDICAL BRANCH SCHOOL, MEDICAL RESERVE CORP.

Colonel J. Birney Guthrie, Medical Reserve, has called attention to a schedule and a statement sent out by the New Orleans Headquarters for the purposes of establishing a 87th Division Medical Branch School for medical officers in the City of New Orleans. This course will be given at 8:00 P. M. on the second and fourth Fridays of each month, in the rooms of the Orleans Parish Medical Society, 1551 Canal Street. The notification and the schedule of this course is given below.

HEADQUARTERS 312th MEDICAL REGIMENT

Office of the Executive Officer.

319 Custom House Bldg.,

New Orleans, Louisiana.

Subject: Medical Branch School, New Orleans, Louisiana.

To: All Medical Officers, residing in New Orleans, La.

1. Acting under authority of the Chief of Staff at this station, I should like to call your attention to a Branch School which has been established for the Medical Officers of New Orleans and the surrounding territory. A most attractive and profitable program has been prepared and of course, due credits will be given those who attend. Through the joint invitation of the Orleans Parish Medical Society and the Medical Department of Tulane University, the meetings will take place at the domicile of these organizations, 1551 Canal St., where a lantern is available for demonstration purposes. This station has done its part in the matter of enrollment in the Medical Section of the Officers Reserve Corps. Now the obligation rests on us to do our part in training, to keep up with established standards and to assimilate the work that has been done, and the changes wrought as the results of the World War experience.

2. This is a Medical Branch School and practically all instruction will be given by medical men. Lieutenant Col. Dalton H. Trepagnier, Medical Reserve, has been appointed instructor and various other reserve officers have parts of the course in preparation. It is our hope to be able to present at some time in the course slides and films illustrating some of the combat activities of the Medical Department. It is especially urged that Medical officers of the 312th Medical Regiment and all other Medical officers residing in New Orleans enroll for

this course. The initial meeting was held at Tulane Medical Department, October 12, 1928, at 8 P. M.

J. BIRNEY GUTHRIE, M. D.,
Colonel, Medical Reserve,
Commanding 312th Med. Regiment.

DISTRICT NO. 26.

SCHEDULE.

November 9, 1928, Conference—The Infantry Division in March Column.

November 23, 1928, Conference—Relation of the Medical Regiment to the General Staff Sections, and to the Technical and Administrative Staff of the Division.

December 14, 1928, Conference—The Regiment in Division Column during the Initial Stages of a Meeting Engagement; Development of the Division; Positions of the Medical Regiment at the beginning of the Development of the Division; Development of the Medical Regiment.

December 28, 1928, Conference—Organization, Functions, and Operation of the Service Company.

January 11, 1929, Conference—The Collecting Battalion, Organization and Functions; Tactical Dispositions.

January 25, 1929, Conference—The Collecting Company, Organization and Functions.

February 8, 1929, Conference—The Ambulance Battalion, Organization Function.

February 22, 1929, Conference—The Ambulance Company, Animal Drawn, and Motorized Organization and Functions.

March 8, 1929, Conference—The Hospital Battalion, Organization, Functioning and Operation.

March 22, 1929, Conference—The Hospital Company, Organization, Equipment, Functions and Operation.

April 12, 1929, Conference—The Veterinary Company, Organization, Functions, Operation.

April 26, 1929, Conference—General Review.

May 10, 1929, Conference—General Review.

May 24, 1929—Examination in the subjects covered by the preceding conferences.

NEWS ITEMS.

Dr. R. C. Lynch, Professor of Otolaryngology with the Graduate School of Medicine of The Tulane University of Louisiana, left the city on October 4, to attend a meeting of the Board of Examiners in Otolaryngology in New York, meeting of the American College of Surgeons in Boston, meeting of the Board of Examiners in Otolaryngology in St. Louis and a meeting of the American Academy of Ophthalmology and Otolaryngology in St. Louis.

In Boston Dr. Lynch will take part in the discussion of the presentation of a pamphlet, the first recommendation to be made in the department of Ophthalmology and Otolaryngology towards the standardization of hospitals in this department. In St. Louis Dr. Lynch will present a paper on Stenosis of the Larynx.

Dr. J. C. Culpepper has recently moved from Shaw, Louisiana to Kerrville, Texas.

SOUTHWESTERN TUBERCULOSIS CONFERENCE.

The Second Annual Meeting of the Southwestern Tuberculosis Conference will be held January 22-23, 1929. The meeting place will be Ft. Worth, Texas, and the headquarters during the meeting will be at the Texas Hotel.

The Conference is organized for the purpose of assembling those of the medical profession, veterinary profession, public health and welfare departments and the lay and civic organizations now concerned in the eradication of tuberculosis of people and of livestock so that the discoveries and experiences of each may be co-ordinated for presentation to the masses in a clear and understandable manner; to further unite these various control elements in a sane and uncompromising effort to accomplish the humanitarian and urgently economic task to which they are devoted.

The various organizations interested from the states of Arkansas, Oklahoma, Mississippi, Louisiana and Texas comprise the membership of the Conference and it is further sponsored by interested National Organizations.

UNITED STATES HEALTH SERVICE.

Chronological List of Changes of Duties and Stations of Commissioned and Other Officers of the United States Public Health Service.

By order of the Surgeon-General, Surgeon T. B. H. Anderson is relieved from duty at New Orleans,

La., and assigned to duty at Marine Hospital, Pittsburgh, Pa.

DEDICATION OF JAMES M. BATCHELOR BUILDING.

The Presbyterian Hospital Board of Managers, announced, sometime ago, its intention to construct a new hospital and accessory buildings—outlining a building program that was to proceed over a period of about three years and which when completed, would add to New Orleans one of the most modern hospital plants in the country. The plans have been carried out almost uninterruptedly; and on the evening of October 12 last, formal dedication exercises for the first unit of this building program, were held. A large crowd was present; and, short addresses were made by the Honorable A. J. O'Keefe, mayor, Dr. J. C. Barr, President of the Board of Managers, and Drs. Gessner, Thibault, and Robin. Dr. Batchelor, in honor of whom the building was named, made a very pleasing address expressing his deep appreciation and profound gratitude.

MEETING OF ST. TAMMANY PARISH MEDICAL SOCIETY OF OCTOBER 12, 1928.

The Society met at the New Southern Hotel at Covington, La., with the following answering roll call: F. F. Young, N. M. Hebert, Roland Young, J. F. Buquoi, R. B. Paine, W. L. Stevenson, A. F. Herrin, J. K. Griffith and F. R. Singleton. Dr. Homer Dupuy of New Orleans was the specially invited essayist of the evening and Dr. J. D. Young of Shreveport, La., who happened to be visiting his parents and Dr. Lawrence Randolph Young, of Rayne, La., were present. Drs. F. F. Young, the President and Roland Young, the Secretary were at their respective posts.

The reading and adoption of minutes, as well as report of secretary-treasurer was first in order after roll call, which when completed, Dr. Dupuy was asked for his paper. The Doctor chose as his subject nasal affections and their relation to sinus disease or vice versa. The great Doctor said seventy-five per cent of all nasal affections were due to sinus trouble and more often to antrum and ethmoids. The talk was supplemented by large anatomic pictures to clarify matters and assist in explanations. This was particularly enjoyed by all and considerable discussion followed. The President then asked if any of the guest desired to give the Society a little talk and urged that it be done if they so wished. Dr. J. D. Young graciously stepped forward and in a classical way gave quite an account of epidemic encephalitis mentioning its various types and

taking each in turn separately and discoursed on them in a brief though interesting and scientific manner. Dr. Young was then asked a few questions by Drs. Homer Dupuy and Roland Young and some discussion followed.

Dr. Griffith in behalf of the Society in a befitting manner in his good big way thanked the Doctors for their talks particularly Dr. Dupuy, which was followed by kind remarks by both the visiting physicians and the members.

Dr. Buquoi under miscellaneous business called the attention of the Society to clippings of the press listing the Doctors with the mid-wives in reporting births. He frowned upon this as did the Society and the following resolution was moved by him and seconded by Dr. Griffith and unanimously carried: Whereas it has come to our notice that several members of the State Medical Society in attendance upon obstetrical patients willingly consent to their names being published in the birth notice column of newspapers—in many instances in connection with mid-wives. Be it resolved that as a component unit of the State Medical Society the St. Tammany Parish Medical Society in regular meeting assembled condemns such a practice as irregular and commercialistic and protest against the further persuance of such unethical conduct and that a copy of this resolution be sent to the State Medical Society Journal, our Councilor and the registrar of vital statistics.

It was moved by F. F. Young that the next meeting be held in Slidell—seconded by Dr. Buquoi, unanimously carried.

ROLAND YOUNG, M. D.,

Secy-Tres., St. Tammany Parish Medical Society.

A COURSE OF LECTURES ON BIOLOGIC SUBJECTS.

The following lectures will be given during the year 1928-29 before the members of Beta Mu, the honorary biological fraternity of Tulane University:

November 7. *The Relation of Light to Human Health*, by Dr. Henry Laurens, Professor of Physiology, Tulane University College of Medicine.

December 5. *Adaptation to Parasitic Life in the Animal Kingdom*, by Dr. Ernest Carroll Faust of the Department of Tropical Medicine, Tulane University.

January 10. *The Life of a Coral Reef*, by Dr. Wm. H. Longley, Professor of Biology, Goucher College, Baltimore, Md.

March 6. *Twins and Twinning*, by Dr. H. H. Newman, Professor of Zoology and Dean of the College of Science, University of Chicago.

April 3. *Progress of Forestry in the Southern States*, by E. L. Demmon, Acting Director, Southern Forest Experiment Station, United States Department of Agriculture.

May 14. *Malaria Control*, by Dr. C. C. Bass, Dean of the College of Medicine, Tulane University.

Members of the Orleans Parish and the Louisiana State Medical Society, who are interested in this lecture series are invited to become associate members of Beta Mu. Application for membership accompanied by remittance of \$2.00 for the annual dues may be sent to the secretary, Mr. Waldo L. Treuting, Department of Zoology, Tulane University. There will be no sale of tickets, the lectures being for members only.

CORRESPONDENCE.

The Christian Science Watchman, 20 Jackson Place
N. W., Washington, D. C.,

October 17, 1928.

Editor, New Orleans Medical and Surgical Journal,
1551 Canal Street, New Orleans Louisiana.

Dear Sir:

The tragedies that have been permitted in the name of Christian Science by its overzealous devotees have largely justified the widespread prejudice against it. The Christian Science Parent Church, the independent minority movement in Christian Science, is endeavoring to bring a new spirit of sanity and common sense into the practice of mental healing. It recognizes the unselfish, humanitarian labors of the medical profession in alleviating human suffering. It likewise recognizes the vital function of spiritual forces in relation to health. It is convinced that there exists a basis of co-operation on which medicine and religion may thrive together for the advancement of world health.

Since Mrs. Eddy's death, Christian Science practice has very largely become a commercialized faith-cure. The record of disease and death among Christian Scientist during the last few years is appalling. Because of a superstition that the use of a drug is an evil and the employment of medical aid tantamount to a confession that Christian Science has failed, the majority of the adherents of that faith turn to medical assistance only as a last resort, usually secretly and with the depressing conviction that they are committing a positive sin. Such an attitude tends to nullify the work of the physician and deplete the patient's mental capacity for recuperation. Frequently the doctor

is called only when death is considered imminent, and to prevent, if possible, the embarrassment of an inquest.

The conditions have arisen from a misconception of Christian Science in its larger application. In order to prove to an incredulous world that the body can be healed by mind, drugs were discarded during the early states of the movement. Nevertheless, it is a recognized fact in Christian Science that a drug may be the medium through which the common faith and hope of the majority of mankind expresses itself. In the personal experience of Mrs. Eddy there came a time when neither her own nor her followers' unaided faith was sufficient to relieve her of serious suffering. Understanding the power of the faith of the majority of mankind in medical science she decided to utilize it, and gratefully availed herself of the services of reputable physicians on various occasions.

In so doing, she was consistent with her own teaching on the relation of a minority's faith in mind-power to a majority's faith in material means. She was far in advance of her followers' practical application of Mind-Science. Had her example been intelligently followed by her students, Christian Science practice would today hold a higher place in the general estimation of the world.

The Christian Science Parent Church was organized a few years ago under the leadership of Mrs. Annie C. Bill. It has developed branches throughout Great Britain, America, Australia, and elsewhere. Its members have been recruited almost entirely from those who have resigned from the original Christian Science organization after they became convinced that the trend of thought within that body precluded further advancement of Mind-Science.

This organization maintains that the work of the Christian Scientists is limited to the teaching of spiritual truth, and to removing fear and other

unhealthful moral conditions. Its members are forbidden by their Church by-laws to meddle in any way with medical or surgical practice, but must leave such work to those who are qualified and legally authorized for that responsibility. Neither shall a practitioner of this Church render his services unless both patient and attending physician request his aid.

Spiritual healing has a definite place in therapeutic practice. Therefore, in order that it may be utilized under such conditions as will keep it within its proper field and insure the maximum results, we bespeak the intelligent co-operation of the medical fraternity.

Yours very truly,

A. M. VICKERY,
Editor.

With this letter there was enclosed a pamphlet entitled "A Ghastly Record," which points out that in Brookline, Massachusetts, there is an institution called The Christian Science Benevolent Association Sanatorium, a magnificent structure for the care of the Christian Science ill. The author's pamphlet states that there is a growing dissatisfaction with this sanatorium among many Christian Scientists, who declare that it is a complete inversion of Christian Science. He adds furthermore the following, which is worth quoting:

"Brookline is the home of three medical hospitals of national reputation—the Corey Hill Hospital, the Brookline General Hospital, and the Brooks Hospital. In points of deaths, during the five-years period since the Christian Science Benevolent Association Sanatorium was established, and which the above figures cover, almost as many persons died in the Christian Science Benevolent Sanatorium as in all three of these famous medical hospitals together, and eighteen more Christian Scientists died in Brookline during this period than in all three of them."

ALCOHOL AND HUMAN LIFE.—So logical must such ideas appear—so plainly fair and ethical—that it is something like a shock to learn that in many States statutory law compels the authors of text-books on physiology and hygiene used in schools to include a chapter on the deleterious effect of alcohol on human life and health. I know of nothing in the American scene today more downright immoral! Here is, at best, a highly debatable subject, one to be settled only by the methods of science. And by law an interpretation is imposed upon the result of those investigations before they are made. Science by legislation. Truth by legislation, when the object of legislation is justice. The people who support these grossly wicked practices are the ones who consider themselves the most moral individuals in

the community. Last year, in discussing some public remarks which I made jointly with the Professor of Biology at the University of Kansas, a clergyman said that "scientists must make their discoveries harmonize with the beliefs of the American people." And neither then nor at any later time did he appear to realize the enormity of what he had uttered—how blasphemous it was, how immoral. Because, translated into his own phraseology and philosophy, what he said was that if a man discovered one of God's truths and that truth was not what the American people believed he must announce that the truth of God which he had discovered was a lie. Yet this minister's statement was a revelation of the real and unconscious attitude of his soul.—Clendenning, Logan: The Outlook, July 18, 1928, p. 452.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

Dr. Inman W. Cooper of Meridian, Mississippi, Councilor of the Southern Medical Association for the state of Mississippi, wishes to call the attention of the members of the Mississippi State Medical Association to the fact that the Southern Medical Association will hold its annual meeting in Asheville, North Carolina, November 12-15.

The preliminary announcements indicate a most interesting program. Monday, November 12, will be devoted to clinics arranged by the physicians of Asheville. On Tuesday there will be clinical demonstrations by some of the best men of the South. These clinical meetings will equal in excellence those of past years. Wednesday and Thursday will be devoted to the work of the various sections.

Ample entertainment for the visiting doctors is being arranged and among other items mentioned are golf and trap shooting. It is to be hoped that Mississippi will send a large delegation.

President W. H. Frizell addressed the South Mississippi Medical Society at their recent meeting in Hattiesburg. This society will hold the next meeting in Laurel, December 13.

Dr. G. S. Ramsey, formerly of Clinton and late of Jackson, is now practising in Brookhaven.

The King's Daughters Hospital at Brookhaven, Mississippi, is devising ways and means of enlarging their buildings so as to afford more room.

Dr. L. S. Gaudet, of Natchez, has been appointed Correspondent for the state of Mississippi, to the American Journal of Ophthalmology. He requests that news items, changes of addresses and reports of special or rare cases by ophthalmologists be sent to him.

On October 9, the regular meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held in Vicksburg. The following program was presented:

1. Caesarian Section vs. Laparo-hysterectomy—Dr. D. A. Pettit.
2. Children—Sick and Well—Dr. I. C. Knox.
3. Ductless Grand Pathology and Therapy in Children—Dr. Noel C. Womack, Jackson.

The following are some abstracts of September 11:

Am I My Brother's Keeper?—Dr. L. L. Martin. I wish to bring up some phases of the relationship existing between physicians on the one hand and surgeons and specialists on the other. We physicians, especially those in the country, must rely to a great extent on our city brothers with their laboratories, hospitals and specialized knowledge. We need them and in a measure, they depend on us. Patients are sometimes referred without acknowledgement of the courtesy; also patients are referred for diagnosis only, and in the shuffle lost completely. Do you wonder at the more cordial feeling toward the specialist who invariably writes or calls up to thank you for the courtesy and to give his diagnosis and outline of treatment? Consultants sometimes forget their ethical position by giving the patient or his family the impression that the family physician has not done all that should have been done. I do not think it amiss for any of us to refresh our memory of the Golden Rule, for we of the profession are surely in a great measure "Our Brother's Keeper."

Vincent's Infection of the Gums.—Dr. G. W. F. Rembert, Jackson. Vincent's infection is a better term than Vincent's angina. History of this malady goes back to the eighteenth century, when the French troops in Italy had the disease. The organism was discovered by an American dentist, Miller, in 1893, in Berlin. Vincent did much work with the organism and it is named after him. Vincent's infections do not seem to have been severe until during the last war. It was then called trench mouth or trench gums. It is very contagious, 200 of 800 German prisoners in one camp developing the disease in two days. It is a disease of close contact, and most frequently affects the gums, tonsils, gastro-intestinal tract, prepuce and clitoris. It has been called the fourth venereal disease. There are three classes of gangrene: 1. Due to the colon bacillus alone or with other organisms; 2. due to the Welch bacillus; and 3. Vincent's infection. Probably more gangrenous and putrid infections are due to Vincent's infection is often associated with colon, streptococcus, and staphylococcus. These other organisms seem to pave the way for the Vincent's infection. With infections of the gums there is redness, swelling, pain and a distinctive odor. This organism has been reported in five per cent of gangrenous appendices. It may cause ulcerated lesions of the skin and abscesses of the lung fol-

lowing tonsillectomy. The dentist is important in its treatment. For treatment many recommend 5 per cent chromic acid. Sodium perborate seems to have a specific action used as a gargle or mouth wash or as a thick paste worked into the gums on a soft tooth brush. Alleviation of symptoms does not necessarily mean that the patient is cured.

WARNING AGAINST SPECTACLE PEDDLERS.

The people are warned against any peddlers claiming to be with the Mississippi State Commission for the Blind. No one has been authorized by the Commission to sell or give away glasses in their name.

We have been informed that two or three persons have been traveling over the State imposing upon blind people, those partially blind and those with minor defects of vision in this way.

As State Health Officer and a member of the State Commission for the Blind, I would warn the people of the State of the danger of not having glasses fitted correctly by a specialist.

If you need glasses or treatment for the eyes, go to an eye specialist, one who is competent to fit glasses and to treat those delicate instruments of vision, the eyes. Don't take a chance by buying them from a peddler, or a clerk in a store. Quite often, I have seen people who should know better go into Five and Ten Cent Stores and other stores to purchase spectacles.

The wonder is that a great many more people do not have trouble with their eyes when we take into consideration the abuse, the neglect, and the vicious treatment given.

FELIX J. UNDERWOOD, M. D.

The annual meeting of the Homochitto Valley Medical Society was held in Natchez, October 11. President of the State Association, Dr. W. H. Frizell, and Dr. Alphonse Meyer of Memphis were guests of the society.

Election of officers for the year, 1929, resulted as follows:

President: Dr. W. H. H. Lewis.

Vice-Presidents:

Adams County—Dr. J. D. Shields.

Amite County—Dr. J. W. Dugger.

Franklin County—Dr. C. E. Mullins.

Jefferson County—Dr. R. B. Clark.

Wilkinson County—Dr. J. W. Brandon.

Secretary-Treasurer: Dr. W. K. Stowers.

Board of Censors: Dr. R. D. Sessions, elected for 1929-30-31.

Dr. S. R. Towns was elected to fill the vacancy

for Jefferson County on the Board of Censors caused by Dr. J. C. McNair's absence (1929).

Dr. W. H. Aikman was re-elected on Medical Defense Committee for 1929.

The Society voted to remit the dues of the secretary.

Clinical reports were made on the injection of sodium salicylate in the treatment of varicose veins.

Dr. Frizell addressed the society, making an unusually good and most impressive talk on medical organization and on co-operation among physicians.

Dr. Alphonse H. Meyer presented a paper on Fracture of the Femur in the Aged, which was illustrated by a small model and by lantern slides.

The Staff of the Vicksburg Sanatorium held its monthly meeting on October 10, with the following program.

1. Osteomyelitis on the Flat Bones of the Cranium—Dr. A. Street.
2. Necrosis of the Mandible—Dr. J. A. K. Birchett, Jr.
3. Coronary Thrombosis—Dr. L. J. Clark.
4. Retro-bulbar Neuritis—Dr. E. H. Jones.
5. Broncho-biliary Fistula—Dr. W. H. Parsons.
6. Intestinal Obstruction—Dr. H. H. Johnston.
7. The Coagulation of the Blood—Dr. L. S. Lippincott.

The Editor of this column wishes to urge the officers of the Association and of the County Societies as well as individual physicians to co-operate with him to make this column what it should be—a news column, a means whereby the doctors of the state may be kept acquainted with the activities of their friends and colleagues in other parts of the state. There is no reason why any individual physician should not send in to the Editor an account of his trip to some clinic, change of address, or any other news item regarding himself, his hospital or his public health work in his county.

Those who pay any attention to this column will note that during the past few months the news has been confined almost entirely to the same few old standbys. Several of the largest societies in the state are conspicuous by their silence.

BOOK REVIEWS

Mechanics of the Digestive Tract: By W. C. Alvarez, M. D. New York, Paul B. Hoeber, Inc. 1928. 447 pp.

Like the first edition, Alvarez's second work represents the newer conception of gastric and intestinal physiology especially that of motility. The gradient idea of the control of peristalsis in the digestive tract and many of the recent studies on function of this canal are the fruits of his own ardent and painstaking researches.

There are clear descriptions, in separate chapters, on the activity of each segment of the alimentary canal including esophagus, cardia, stomach, pylorus, small intestine, cecum, colon. The application of these physiological facts to clinical diagnosis is a feature of the book of greatest interest to the clinician. In this work the reader may visualize a representative of a happy, but unusual combination, practitioner plus physiologist.

The chapter on the mechanics of the gall bladder is illuminating and brings out the recent discoveries in the new era of our knowledge of gall bladder function which started but a few years ago. Alvarez is most liberal in his credit to other investigators, and many of the leaders among them are also represented by their personal photographs.

This text should be the proud possession of every medical man interested in the gastric-intestinal tract, whether be in the laboratory or in the clinic.

DANIEL N. SILVERMAN, M. D.

Criteria for the Classification and Diagnosis of Heart Disease: By a Committee Appointed by the Heart Committee of the New York Tuberculosis and Health Association, Inc., New York. Paul B. Hoeber, 1928, 92 pp.

In order to have a standard nomenclature and terminology, as well as uniform criteria for the employment of adjectives and descriptive terms, the Health Committee of the New York Tuberculosis and Health Association has brought out this little volume under the editorship of Dr. Pardee. The book first discusses the criteria for nomenclature of cardiac diagnosis, calling attention to the fact that the diagnosis should contain, in order to be complete, an etiologic, anatomic and physiologic diagnosis, as well as an estimate of the functional capacity of the patient's heart. For example, "Syphilitic heart disease, with aortic insufficiency, premature articular contractions, able to carry on ordinary physical activity," is a rather complicated diagnosis, yet such a diag-

nosis gives us the essential features of that particular individual's cardiac condition and with the knowledge of the etiologic criteria and the anatomic criteria, which are outlined in the latter part of the book, the reader of such a diagnosis would understand just exactly what the original writer felt about his diagnosis and his estimation of that man's cardiac lesion. Simplifications of diagnosis are to be welcomed, but of greater importance than this is a nomenclature which is understood by all medical men so that they will speak the same language. That is not so, witness the different terms used to describe rates, or question medical men about bronchial breathing and see how the answers vary. It would seem that it would be a relatively simple matter to have a standard nomenclature, but such is not the case. The Heart Association is to be congratulated upon their effort to classify heart disease and to bring forth a terminology which can be employed and understood universally.

J. H. MUSSER, M. D.

A Laboratory Manual of Physiological Chemistry: By D. Wright Wilson. Baltimore, The Williams and Wilkins Company. 1928. 272 pp.

This manual is a revision of one used for several years at the Johns Hopkins University and the University of Pennsylvania. As indicated in the preface, many experiments given are not regularly assigned, but are available for special work. Part I contains experiments on subjects introductory to physiological chemistry proper, electrolytic dissociation, colloids, fats, carbohydrates and proteins. In Part II are found qualitative tests, quantitative determinations and methods of preparation of various substances of bio-chemical interest. Here are considered the digestive secretions, urine, milk, blood, bone, muscle, the cell nucleus and bile. Alternate methods are given in a number of cases. The book is something more than a mere laboratory outline in that a considerable amount of explanation is included. Since every other page is blank, no extra notebook is necessary for the student.

R. C. CORLEY, M. D.

Bacteriology for Nurses: By Charles F. Carter, B. S., M. D. St. Louis, C. V. Mosby Company. 1928. 213 pp.

A most perfect example of abbreviated clearness of presentation of a rather intricate subject to a class of pupils to whom the amount of material in the volume is sufficient for their practical every day purposes.

J. H. MUSSER, M. D.

A Handbook of the Diseases of the Stomach: By Stanley Wyard, M. D., B. S., M. R. C. P. London, Oxford University Press. 1927. 387 pp.

The text is one of several recently published on this single organ. The important functional disturbances and the pathological conditions of the stomach are discussed in separate chapters. Unlike some of the other books on diseases of the stomach, Wyard's is truly limited in its scope to that viscus. The book is almost entirely clinical and a valuable reference for one in general practice. There is no bibliography to enable one to investigate any particular phase of the text or to do research from it.

DANIEL N. SILVERMAN, M. D.

Folklore of the Teeth: By Leo Kanner, M. D. New York, MacMillan Company. 1928. 316 pp.

The folklore of medicine has had numerous authors who have taken up various phases of this terrifically comprehensive subject. The dentists, however, have never rated any historical researches in their branch of medicine, and it has remained for a medical man to do this. The result is an extremely interesting compilation upon the superstitions, the symbolisms, and the folklore of various races concerning the teeth and the evils which befall them. There is first described various legends concerning the number, position and time of eruption of the teeth, together with the methods prevailing in days of yore to prevent injury to the child at the time of dentition. Various chapters are then devoted to such interesting subjects as the appreciation of healthy teeth, the fate of the milk teeth, the story of the toothpick and the toothbrush, and then we come to a very long section devoted largely to toothache. The general ideas and conceptions of toothaches and means of curing them in the early ages down to the middle ages are described in a most interesting way. The treatment of toothache takes up considerable space. The plant treatment extends alphabetically from aloes to wormwood, the first of which was used in ancient Greece. The Czechs fumigated with wormwood for the purpose of easing pain. Between the extremes of the letters A and W there are enumerated innumerable plants which have been used by numerous races. All types of animals, or their anatomical parts, have also been used for treatment of this curse of nature. In old Germany bear's gall helped; in Bavaria the head of a weasel is used as an amulet against toothache. All types of human organs and secretions have been used. Inorganic toothache remedies are described by the author, while written

and spoken charms against toothache are too numerous to recite. We even find a patroness of toothache, St. Appolonia, who fell under the wrath of the Emperor Julian and had her teeth knocked out with pointed iron instruments and the roots pulled out with tongs. So bravely did this martyr withstand the punishment that she was soon canonized as an example of Christian fortitude.

Many other interesting details as to the use of teeth as drugs, charms, relics, souvenirs, jewelry, and so on, follow. In this rather cursory description of the book it may be seen that it will prove most pleasing reading to those interested in quasi-historical medicine.

J. H. MUSSER, M. D.

Muscle Function: By Wilhelmine G. Wright. New York, Paul B. Hoeber. 1928. pp. 188.

Muscle Function, by W. Wright, offers the physical therapy technician and the physician a book which is highly instructive and very interesting. It is one which fills a long-felt need to those concerned in the after treatment of poliomyelitis and other forms of paralysis and to the study of many muscle function problems. Especially could be mentioned those in connection with the after care of fractures and post-operative myotonia. The writer's discussion of the function of muscles is so presented that it offers itself as a book of great value in reference to the after care of cases of tendon transplantation.

The book recommends itself to any one interested in body mechanics, and they will find the volume presented in such a manner that the writer's many years of experience should be indispensable. Not only does it concern itself with paralyzed muscles, but also the function of the normal body musculature. It might be considered a valuable explanatory edition to general anatomy and, therefore, is of value not only to the graduate physician and physical therapy technician, but also to the undergraduate.

JOHN T. O'FERRALL, M. D.

Heart in Modern Practice: By William Duncan Reid. Philadelphia, J. B. Lippincott & Company. 1928. pp. 466.

This book will need no recommendation to those who have read the first edition. The author has enlarged the book and brought it up to date. It contains the new authorized classification of heart disease published by the American Heart Association as well as the author's own classification. The chapters on cardiac arrhythmias have been enlarged and clarified by many excellent illustrations. As a whole, this book incorporates in a concrete manner, the best of our news knowledge of cardiology.

RANDOLPH LYONS, M. D.

The Nose, Throat and Ear: John F. Barnhill, M. D., F. A. C. S. New York, D. Appleton & Co. 1928. pp. 604.

This is an excellent manual especially to be recommended for the omission of much of the non-essentials.

In submucous resection the author's remarks on asepsis, including the use of rubber gloves by the operator, are noteworthy.

In discussing the surgical removal of the entire tonsil as against the old technique of tonsillotomy the author logically argues that since the tonsillar crypt traverses the whole thickness of the tonsil, and disease of the tonsil is essentially a disease of the crypt, that surgical removal, to be effective, must include removal of the entire tonsil.

Tonsillectomy (provided the associated pulmonary tuberculosis is in an early stage and not active) is advocated in tuberculosis of the tonsil; many laryngologists are not in accord with this opinion.

The book is very readable and remarkably free from topographic errors. Anatomical diagrams and descriptions are excellent. There is an unusually complete section on diseases of the salivary glands.

The section on bronchoscopy and esophagoscopy is good. The author gives an unusually lucid description of tracheotomy.

About one-third of the volume is occupied with diseases of the ear and their complications. Operative difficulties here are clarified by good illustrations and the book generally is well illustrated with 452 well-executed and carefully chosen figures and diagrams.

H. KEARNEY, M. D.

Blood and Urine Chemistry: By R. B. H. Gradwohl, M. D., and Ida E. Gradwohl, A. B. St. Louis, C. V. Mosby Co. 1928. pp. 526.

This volume is a compilation of the best recognized laboratory methods used in urine and blood chemistry today. The selected technique is stated in simple form so that the reader need not be a finished laboratory worker to understand the procedures.

This work is divided into four parts: Part I deals with blood chemistry and includes not only various routine quantitative and qualitative determination of the various constituents of blood but beginning with the most appropriate and complete equipment of a blood chemistry laboratory, includes the routine examination, and closes with techniques for the determination of the occasionally requested constituents of blood.

Part II deals with the chemistry of urine in the same manner as Part I deals with the chemistry of blood.

Part III is the most valuable portion of the work to the medical practitioner as it contains the interpretation placed upon the findings of the various determinations in Parts I and II.

Part IV discusses basal metabolism and includes the various techniques, the influence of various factors in the determination of the rate, and the interpretation of the results.

This work may be considered one of the outstanding treatises on blood and urine chemistry that can be found on the market today. It is a highly valuable volume to anyone having any connection whatsoever with laboratory technique and its interpretation.

EDWIN H. LAWSON, M. D.

Diabetic Manual for Patients: By Henry J. John, M. A., M. D. St. Louis, C. V. Mosby Company. 1928. pp. 202.

Another name added to the list of those who have prepared manuals for diabetic patients. It is quite possible that a society will be formed in the near future, members of which will consist of those who have written diabetic manuals.

J. H. MUSSER, M. D.

PUBLICATION RECEIVED.

J. B. Lippincott Company, Philadelphia and London: *Urology*, by Daniel N. Eisendrath, M. D., and Harry C. Rolnick, M. D.

P. Blakiston's Sons & Company, Philadelphia: *Recent Advances in Physiology*, by C. Lovatt Evans, D. Sc., M. R. C. S., L. R. C. P., F. R. S. *A Pocket Medical Dictionary*, by George M. Gould, A. M., M. D.

Harper & Brothers, New York and London: *Syphilis*, by Charles C. Dennie, B. S., M. D.

Lea & Febiger, Philadelphia: *Progressive Medicine*, Vol. III, September, 1928, edited by Hobart Amory Hare, M. D., LL.D. *Bacteriology*, by Arthur Isaac Kendall, B. S., Ph. D., Dr. P. H. *Physical Education Activities for High School Girls*, by the Staff of the Department of Physical Education for Women, University of Michigan. *Laboratory Manual of the Massachusetts General Hospital*, by Roy R. Wheeler, M. D., and F. T. Hunter, M. D.

Paul B. Hoeber, Inc., New York: *Annals of Roentgenology*, Volume 7, edited by James T. Case, M. D.

William Wood & Company, New York: *Diseases of Infants and Children*, by Henry Dwight Chapin, A. M., M. D., and Lawrence Thomas Royster, M. D.

Gaston Doin & Cie., Paris: *Greffes ovariennes et action endocrine de l'ovaire*, by Vittorio Pettinari.

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APPENDICITIS IN CHILDREN*

CHARLES JAMES BLOOM, M. D.,

NEW ORLEANS.

The appendix was first distinguished by Berengarius of Carpi in 1524.

During the sixteenth century much was written about this organ—anatomically; as a pathological possibility it remained in oblivion until the eighteenth century; and lastly as a clinical and surgical entity received but little consideration until the nineteenth century.

In 1759 Mestivier called the attention of the first accepted case of disease of the appendix.

Prior to 1808, the period relating to the appendix is essentially French—followed in quick succession by the English—but as yet—the acceptance or recognition by the Americans had not taken place.

But in 1886 Reginald Fitz* of Boston wrote: "It is the duty of every physician to be mindful that, for all practical purposes perityphilitis, perityphilitic tumor and perityphilitis abscess means inflammation of the vermiform appendix." It was he who first coined the term appendicitis—instead of perityphilitis, perityphilitic tumor and perityphilitis abscess—as had been the nomenclature up to this time.

At the present time, thanks to the writing of Weir and McBurney of New York, much of our knowledge of the appendix and its various pathological entites were prompted and gained from these original sources.

The first recorded case in a child was made by Parkinson⁽¹⁾ (1812)—a 5-year-old boy. For many years thereafter isolated cases were mentioned in literature.

Iliff⁽²⁾ (1832) recorded a case of a 12-year-old boy, who died of abscess of the right iliac fossa and at autopsy the appendix was found to contain a stone.

Bohr⁽³⁾ (1837) and Burne⁽⁴⁾ (1839) both reported cases with perforations of the appendix occurring in children 10 and 14 years old, respectively.

Betz⁽⁵⁾ (1870), published a paper entitled "Ileus in child 7 months old resulting from perforation of the appendix and agglutination of the intestine."

Matterstock's⁽⁶⁾ (1880) admirable treatise published in 1880, and Karewski,⁽⁷⁾ 1897, and Selter⁽⁸⁾ 1901, have contributed meritorious papers on appendicitis in infancy.

THE CASES.

This study embraces one hundred (100) cases—each one observed in my private practice. For lack of time the statistical data herein given relates to the group that has up to this reading been operated upon—namely thirty-four (34) cases.

The other cases are briefly stated but are not considered in the final deductions.

*Read before the Orleans Parish Medical Society Meeting, June 25, 1928.

*N. Y. Med. Jour. 47:508, 1886.

Operated cases	34
Cases with clinical and Roentgen-ray diagnosis	53
Cases diagnosed without Roentgenograms	13
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Total cases	100

AGE AND SYMPTOMS

The youngest case reported was recorded by Gloniger⁽⁹⁾ (1905), (Lebanon, Pa.), a male child 41 hours old, and mentioned by Kelly⁽⁹⁾ (1905); Hill and Manson⁽¹⁰⁾ (1925), also report their youngest case—an infant 55 hours old.

Miss Gordon⁽¹¹⁾ (1896), for a period of 12 years antedating 1883, collected 26 cases of appendicitis in 50,000 children; from 1893 to 1896, 80 cases were collected, though the number of children was decidedly smaller.

It will be seen that appendicitis is almost unheard of in the first year of life and is very limited in occurrence during the second and third year, but from the sixth year on the number increases and becomes rather uncommon after the tenth year.

Barrington-Ward's⁽¹²⁾ (1928) youngest case was 8 months.

McGuire⁽¹³⁾ (1898) collected one hundred and four (104) cases in children, three (3) being under three years of age, forty-seven (47) from three to eight years and fifty-four (54) from nine to fourteen years.

Griffith⁽¹⁴⁾ (1901) reported only fourteen (14) cases from the literature and one of his own, occurring in the first two years of life.

Of McCosh's⁽¹⁵⁾ (1904) one thousand (1000) operative cases of all ages, seventeen (17) occurred in the first five years of life and fifty-one (51) in ages from five to ten years.

Abt⁽¹⁶⁾ (1917) gathered eighty (80) cases two years or younger.

Schlossman⁽¹⁷⁾ (1922) "found that the literature, up to 1922, gave about thirty

(30) cases of appendicitis in children under two years. He further states that the appendicitis statistics of the Bremen Hospital for Children, show (60) cases operated on, of which thirty-five (35) were under ten years. The youngest was one and a half years. He also is the authority for the following: Kirmission collected (20) cases in children under two years, of which nine occurred in the first year and seventeen in the second; Deiss reports ninety-eight (98) cases in children, of which seven (7) occurred up to two years and 25 per cent were under five (5) years; Goldzicher found 3.2 per cent of all cases were in the first decade. In Gardner's fifty-one (51) cases operated on, nine were under five and fifty between five and ten years. Dowd operated on seventy (70) children, of which none was under two years. Maylard operated on one hundred (100) patients, the youngest being between three and four years."

Kelley⁽¹⁸⁾ (1923) treated fifty-seven (57) cases of the acute type—five were under two years; one six months; twenty-one under five years, and the remainder under 13 years. Of 16,571 cases collected, 400 were under five years, 1,376 from six to 10 years, and 2,696 between 11 and 15 years.

Bolling⁽¹⁹⁾ (1924) had similar figures.

Mixer⁽²⁰⁾ (1924) had nine under five years and the youngest patient was two and a half years—out of one hundred cases of chronic appendicitis.

Howland⁽²¹⁾ (1924) has expressed that it is distinctly uncommon in children under five years of age, and in those under two years it is really a rare disease.

Others reporting interesting statistics are as follows:

Beekman⁽²²⁾ (1924), 43 cases: Under three years, 10 cases; under four years, 9 cases; under five years, 23 cases.

Richter⁽²³⁾ (1924), 208 cases: Personal, 82 cases; Cook County Hospital, 126 cases:

Under one year, 1 case; under $1\frac{1}{2}$ year, 1 case; under two-three years, 3 cases; under three-four years, 2 cases; under four-five years, 9 cases; under six-thirteen years, 192 cases.

Christopher⁽²⁴⁾ (1926): Under five years, 18 out of 533 collected cases.

Seeger⁽²⁵⁾ (1926): Out of 61 operations for the removal of the appendix, there were none under two and only four under five years.

In contrast to all these figures is a report by Peterson⁽²⁶⁾ (1926), who had a group of sixty-two cases in which forty-one occurred up to five years of age, five of these being under one year and five under two years. Twenty-one were seen between five and six years. Over 75 per cent of them were acute.

The youngest case seen by Royster⁽²⁷⁾ (1927) was an infant three months of age who had a ruptured appendix completely walled off.

A. S. Root⁽²⁸⁾ (1927) writes "appendicitis is less frequent under ten years of age and the younger the child the more infrequent its occurrence."

My youngest case was sixteen months. The age distribution of this series is as follows:

Under 2 years	2 cases
2-6 years	14 "
6-10 years	10 "
10-14 years	8 "
<hr/>	
Total	34 cases

INTERESTING FACTS—ANATOMY AND ETIOLOGY.

Anatomy: The infantile appendix is larger both in diameter and length than in the adult; the coats are much more delicate—especially the submucous; the caeco-appendiceal junction is occasionally funnel shaped—insuring better drainage, but admitting more readily the entrance of foreign bodies; the valves do not appear to close the mouth of the organ as readily—

therefore greater lumen and smoother mucosa; blood supply is inadequate—generally by a single vessel in free edge of mesentery—easily affected; always curved, sometimes kinked; free drainage into the caecum may be prevented, resulting in concretions; meso is very thin.

Therefore tendency to rupture, lack of localizing process and lowered resisting power is readily understood.

Etiology: The following causes play a part in influencing appendicitis:

(1) Fecoliths—produced by lack of drainage into the caecum; not seen in the very young but reported by Betz⁽²⁹⁾ in a child of seven months, and Demme⁽³⁰⁾ in one of seven weeks. These are exceptional cases. As time is required for formation—they are seen in older children.

(2) Hematogenous infection—advocated by Poynton & Paine⁽³¹⁾ (1911), and Rosenow⁽³²⁾ (1915). Based on seasonal incidence—in epidemic form and also of the relation of focal infection and certain contagious diseases—with associated cases of appendicitis.

3. Constipation—supposedly a very common cause—so often noted in appendicitis—but whether the one is the cause of the other—or constipation the result of a diseased appendix is difficult to state.

(4) Virulence of bacteria—unquestionably plays a part in predisposing certain types, and perhaps influences to some extent the acuteness of the attack.

(5) Kink and Meckel's diverticulum—not at all unlikely as a factor in a small proportion of these cases.

(6) Intestinal parasites—can produce pathology—most uncommon—usually the ascaris lumbricoides, tricocephalis and pin worms; *in this series live pin worms were recovered in three cases and in one case diagnosed prior to operation.*

(7) Foreign bodies—accepted when appendicitis was first described—no longer

considered an etiological possibility of much value; seeds have been reported found in appendices, however.

(8) Trauma—in older children a few cases have been reported directly due to abdominal trauma.

(8) Cathartics. A potential appendix though probably present in young children is not often recognized until a cathartic converts it into an acute attack.

Much propaganda should be used in convincing physicians and parents against giving purgatives or cathartics on mere presumption of intestinal disturbances—not until the possibility of appendicitis is definitely ruled out—temporarily intestinal irrigations will give better results.

TYPES.

There were 17 cases of the acute and subacute variety and an equal number of the chronic type. Although there appears to be diversity of opinion as to the relative term chronic being used in this connection. Deaver⁽³³⁾ (1910) and Mixter⁽³⁴⁾ (1924) are positive in their belief that these conditions do exist, but are unrecognized.

The anatomical considerations in this connection are discussed in a previous paragraph. In children where clinical symptoms are clouded with elements of doubt, go a bit further and utilize other aids—roentgen-ray and blood—in an attempt to properly interpret your case. Do not allow a purgative to “alter” an attack of indigestion so as to transform it into an acute ruptured appendix and then realize, for the first time, the true status of your case.

SEX.

Of the thirty-four (34) cases constituting this study, fourteen (14) were males and twenty (20) were females.

Deaver's⁽³⁵⁾ (1910) statistics of five hundred (500) cases seem to prove that the disease is much more common in males, as 315 were boys and 185 were girls.

WEIGHT.

In this series of children, more than 90 per cent were from 10 to 20 per cent underweight, and it was remarkable, indeed, to observe the aftermath in this especial regard, when the appendix had been removed.

THIRTY-FOUR (34) OPERATIVE CASES IN DETAIL.*

Case 1. Salient Points:

Past History: Habitual constipation; accustomed to frequent purgations; indiscretions of diet; attacks of acidosis.

Present Illness: General pain in abdomen; high fever; vomiting; flexion of right thigh on abdomen. See blood report under Blood Findings.

Operated by Drs. E. D. Martin and C. G. Cole. “Appendix found to be acutely congested, filled with gas and twice its normal size—it is evidently the beginning of a serious attack.”

Pathological Report: Dr. John A. Lanford. “Appendix measures $6\frac{1}{2} \times 1\frac{1}{2}$ cm. The outer surface is somewhat granular and shows the presence of adhesions. It is bright red to flat white in color. No meso it left attached.

“Section shows the wall thickened and lumen dilated and filled with blood and pus.”

Case 2. Salient Points:

Past History: Frequent attacks of acidosis, associated with pain in right lower quadrant and elevation of temperature. Abdominal distress after eating; headaches; tendency to constipation. Extremely nervous.

Present Illness: Typical attack.

Operated: Operation by Dr. S. M. D. Clark. “Although the case was carefully worked out by Dr. C. J. Bloom and the child definitely located her pain over McBurney's point, combined with numerous attacks of such trouble, I am doubtful as to the appendix being the true pathology.”

Pathological Report: Dr. John A. Lanford. Chronic appendicitis.

Case 3. Salient Points:

Past History: Marked secondary anemia; subject to frequent intestinal disturbances; rickets as an infant; markedly underweight.

Present Illness: Severe abdominal tenderness, with excruciating pain; rigidity, slightly more marked in lower quadrant.

*From the records of Drs. Bloom and de la Houssaye.

Operated by Dr. F. W. Parham. "Appendix found crushed at base; when opened a number of thread worms were found crawling in the appendix."

Pathological Report: Dr. John A. Lanford. "Appendix $5\frac{1}{2} \times \frac{1}{2}$ cm. and pinkish grey in color; shows no gross pathology. Cut surface shows thickened mucosa and inner mucosa glistening. Dirty grey color with three small congested areas."

Case 4. Salient Points:

Past History: Complained of pains in stomach, more in right inguinal region; markedly underweight; secondary anemia; difficult to feed.

Present Illness: None.

Operated by Dr. Jerome Landry. (Hospital history could not be obtained.)

Pathological Report: (Not obtainable.)

Case 5. Salient Points:

Past History: Frequent attacks of acidosis; constipation alternating with diarrhea; underweight; difficult to feed; colicky pains.

Present Illness: General pain in abdomen; elevation of temperature; diarrhea.

Operated by Dr. John F. Dicks. "Appendix found about $2\frac{1}{2}$ inches in length and congested."

Pathological Report: Dr. John A. Lanford. "Appendix measures $7\frac{1}{2} \times \frac{3}{4}$ cm. The outer surface is smooth and glistening, light pink-grey in color. On incision the lumen is patent and contains fecal material."

Additional Facts of Interest: Since birth his mother had experienced great difficulty in feeding this child, though he "clung to her breasts" for 15 months. Complementation with cow's milk and soft foods were added at correct intervals, but even now one would consider his diet rather limited for his age.

Covering a period of 18 months, intestinal disturbances had caused his parents no small amount of worry—recently his symptoms becoming more aggravated and the so-called attacks occurring at shorter intervals. The "spells" were not periodic, and no apparent indiscretions of diet could be found responsible for same. Even with limitation of varieties and of types of food—these attacks of acidosis continued to occur. At times he would vomit for 8 or 9 days, everything—food, water, etc., singularly with an absence of other symptoms that might have made the diagnosis easy. Costive at certain intervals alternating with days of diarrhea were common oc-

currences. Seemingly a very restless and irritable child, with no objective nor subjective significant signs or symptoms is our present patient, of a fairly well developed child.

The appendix was considered seriously, though the clinical picture was somewhat atypical. What points in the history and findings are suggestive:

(1) Difficulty to feed at all times.

(2) History of diarrhea, alternating with periods of constipation.

(3) Acetone attacks, without apparent cause, now becoming more severe, as well as frequent.

(4) Extreme restlessness and most disagreeable child.

(5) Indicanuria.

Case 6. Salient Points:

Past History: Underweight; frequent spells of vomiting and headaches; vague pains in umbilical region; indiscretion of diet.

Present Illness: Seemingly the child is not improved; losing ground in most respects.

Operated by Dr. John F. Dicks. "Caecum was found adherent and could not be delivered; appendix was bound down in mass of adhesions and some little difficulty was experienced in delivering it."

Pathological Report: Dr. G. H. Hauser. "Appendix measures $5\frac{3}{4}$ cm. in length and shows adhesions. Cut surface shows the walls thickened, the mucosa swollen and the lumen obliterated."

Case 7. Salient Points.

Past History: Stationary weight; lack of appetite; occasional attacks of gastric disorders; tendency to various skin eruptions.

Present Illness: Attack of abdominal pain, with nausea; considerable prostration and elevation of temperature. These attacks are becoming more severe and are generally followed by an urticarial eruption. With this spell he has complained considerably of pain in the vicinity of the umbilicus.

Operated by Dr. Peter Graffagnino. "Appendix found free, but filled with fecal concretions. Unusually long and thickened."

Pathological Report: Dr. John A. Lanford. "The outer surface is smooth and glistening, pinkish grey in color and shows slight injection of the serosa vessels. There is practically no meso attached to the organ. Appendix measures $6\frac{1}{2} \times \frac{1}{2}$ cm."

Case 8. Salient Points.

Past History: Underweight; undigested foul stools; marked secondary anemia; poor appetite. At present aversion to all foods; losing in weight. See blood picture under "Blood Findings."

Present Illness: The feeding problem has reached the crisis. He is unable to retain any solid food whatsoever and liquid nourishment is kept in small amounts.

Operated by Dr. E. Denegre Martin. "Appendix shows evidence of chronic pathology; a Meckel's diverticulum about 4 in. from the ileo-cecal valve was found, ligated and stump inverted."

Pathological Report: By Dr. John A. Lanford. "Appendix measures $6 \times \frac{1}{2}$ cm., the outer surface is glistening, light pink to grey in color; there is practically no meso left attached to the organ. On section, the wall is normal in thickness, but the lumen contained a blood-tinged serum."

Case 9. Salient Points.

Past History: Has never been sick up to the present time, and no history of intestinal disturbances.

Present Illness: Since one week patient has had pains in abdomen; generalized; and has vomited three times. While having a gastro-intestinal series made, his mother reported of his having roamed around the house one night, unable to find the light switch. The fundi as reported by Dr. H. Blum were negative, a spinal puncture did not reveal any abnormal findings; the pains in the abdomen were becoming more acute, radiating to the lower quadrant. In view of the fact that central spinal considerations were temporarily at least eliminated we felt that an operation was imperative. His inability to see was most pronounced prior to the operation, but subsequently, after the appendix was removed, his vision became more acute. Was this hysterical blindness due to this attack of appendicitis?

Operation by Dr. John F. Dicks. "Free fluid found in cavity; appendix bound down by numerous acute adhesions, distinctly kinked in the center—the meso was very short."

Pathological Findings: Dr. John A. Lanford. "Appendix measures $6 \times \frac{1}{2}$; the outer surface is smooth and glistening; bright pink in color; and shows considerable injections of the serosa vessels with several regions of thinning and discoloration. On section the wall is thinner than usual and blood escapes from the lumen."

Case 10. Salient Points:

Past History: Extremely poor appetite; secondary anemia; underweight; repeated examination of feces never revealed intestinal parasites nor ova, but large amounts of mucus.

Present Illness: Intestinal disturbance since one week. Diarrhea and nausea since 24 hours, more pronounced on day of operation; pain in abdomen; pinched expression. A tentative diagnosis of intestinal parasites in the appendix was made prior to the operation.

Operated by Dr. John F. Dicks. "Appendix was bound down and adherent in cul-de-sac. Section of appendix revealed about 6 to 8 small pin worms."

Pathological Findings: Dr. John A. Lanford. "No pathological section made as appendix had been dissected. Grossly a picture of definite pathology."

Case 11. Salient Points:

Past History: No previous intestinal disturbance; normal in every respect.

Present Illness: Abdominal pains since 24 hours, localized somewhat in right side; elevation of temperature; purgative given in morning on date of operation. (See blood picture under "Blood Findings.")

Operated by Dr. Urban Maes. "Retrocecal appendix, moderately inflamed; was removed and free fluid noted in the peritoneal cavity."

Pathological Findings: "Appendix measures $7 \frac{1}{2} \times \frac{1}{2}$; the outer surface is slightly granular, light pink in color and shows a few white adhesions; there is but little meso left and no fatty tissue left. On section, the wall is thickened and the lumen is filled with blood."

Case 12. Salient Points:

Past History: Always a difficult child to feed; tendency to loose bowels; underweight; anemic; frequent attacks of indigestion.

Present Illness: Recently at intervals of ten days he has had acute attacks of indigestion followed by high fever.

Operated by Dr. S. M. D. Clark. "The appendix was large and kinked; in addition the gall-bladder seemed stuffed and may have to be drained in the future."

Pathological Findings: Dr. John A. Lanford. "Chronic appendicitis."

Case 13. Salient Points:

Past History: Always a very anemic child; tendency to frequent skin eruptions; occasional attacks of diarrhea with no indiscretion of diet associated with abdominal pain.

Present Illness: Classical attacks with slight stiffening of the right rectus muscle.

Operated by Dr. James Wallace, Biloxi, Miss. "Appendix large and greatly involved."

Pathological Findings: Dr. James Wallace. "Acute appendicitis."

Case 14. Salient Points:

Past History: One mild attack ten days ago.

Present Illness: Pain in abdomen—marked—initiated with a severe diarrhea. The pain was excruciating and general in character; temperature 104°.

Operated by Dr. Julius Isaacson. "Stuffed appendix with beginning gangrene at tip."

Pathological Findings: Dr. M. Couret. "Acute appendicitis."

Case 15. Salient Points:

Past History: Child has been indiscreetly fed for many years, and his present condition was precipitated by a mixture of lobster and peach ice cream he ate two days before present attack.

Present Illness: Has been vomiting for two days and complains of intense abdominal pain which was promptly relieved by a hypodermic administration of morphine. This however, followed the giving of a purgative, presumably calomel. This case was mistaken for gastro-intestinal indigestion. Fever reached a maximum of 104° and towards the second day the pain seemed to radiate to the vicinity of the appendix.

Operated by Dr. Lucian Landry. "As the peritoneum is opened a milky fluid escapes. The appendix is tacked down by its tip and located in the pelvis. The appendix was delivered, found to be very much enlarged at the tip, with a rupture about 1¼ inches from the distal extremity. Some exudate was found in the small bowel in the neighborhood of the appendix but no attempt at encapsulation or protection had been made by the body."

Pathological Findings: Dr. John A. Lanford. "Gross appearance suggests acute appendicitis with rupture."

Case 16. Salient Points:

Past History: Negative in every respect.

Present Illness: First attack; classical symptoms.

Operated by Dr. Marion Souchon. "Acute appendix with rupture at tip."

Pathological Findings: Dr. M. Couret. "Acute appendix with gangrenous tip."

Cast 17. Salient Points:

Past History: Tuberculous diathesis; secondary anemia; tendency to constipation; occasionally nauseated.

Present Illness: First real attack with cardinal symptoms—pain, nausea, vomiting, fever, rigidity over McBurney's point.

Operated by Dr. C. Jeff Miller. "Acute appendix of not more than two hours duration; the appendix is abnormally long, containing gas and fecal material. Mesentery shows considerable congestion. The cecum was mobile, dropped into the pelvis and contained considerable fecal material and gases."

Pathological Report: None.

Case 18. Salient Points:

Past History: Many attacks of indigestion, some of which could not be traced to indiscretions of diet.

Present Illness: Acute pain in abdomen, followed by vomiting in the afternoon. The pain was more intense around the umbilicus and became very severe. There was apparently no elevation of temperature.

Operated by Dr. R. E. Stone. "Free fluid in abdominal cavity, appendix delivered; gangrenous—¾ of its length—"

Pathological Report: Dr. John A. Lanford. "Appendix 6x½; the outer surface is granular in character, varies from bright red to purple at one end which latter is bulbous. The organ is covered by a greenish cream exudate; section of the wall shows thickening and much more moist than usual and the lumen contains bloody pus."

Case 19. Salient Points:

Past History: Pains in abdomen off and on for one year; accompanied by vomiting with little or no fever.

Present Illness: Dates back four days; acute pain in pit of stomach; vomiting. Since 24 hours, though pain has ceased, the patient has been becoming gradually worse.

Operated by Dr. R. E. Stone. "Free pus in peritoneal cavity—acute gangrenous appendix also in evidence."

Pathological Report: Dr. John A. Lanford. "Appendix measures 5x¾; the outer surface is

shiny, light cream to pink in color; the serosa is markedly thickened and no vessels are evident; a very long tag of meso is adherent along one border; along the other border there is a very irregular margin containing some remnants of fat. On section the wall is greatly thickened and presents a distinct tissue ring. The lumen is widely patent and contains fecal material."

Case 20. Salient Points:

Past History: For several years he has had an afternoon elevation of temperature which was thought to have been influenced by tuberculous adenopathy of his chest; this, however, has not influenced his growth as he was well proportioned and weighed more than the average child of his age.

Present Illness: Began two days ago with temperature of 100° reaching a maximum of 104°. He suffered from headaches, slight cough and some sneezing. Yesterday he developed stomach ache, with pain more pronounced just below the umbilicus. This was followed by nausea, vomiting and more acute pain. He passed several liquid stools, and today his pain has shifted somewhat to the right side of the abdomen. Though he vomited considerably last night, today this symptom has ceased, as well as the frequent liquid movements.

Operated by Dr. R. Matas. "On opening the peritoneum some serum exuded in small quantity. The ileo-cecal coil at once presented. The cecum was lying across the pelvic brim with the appendix curled up into almost a complete circle. The appendix was lying in the ileo-cecal fossa, completely encysted, and fixed by adhesions. It had a dark purple color, with here and there patches of white exudate. The appendix was evidently becoming gangrenous but had not perforated; it was swollen with fecal contents, etc. The meso was edematous. The appendix when isolated had the appearance of a small sausage composed apparently of a very black fluid of a very foul odor. It is to be noted that there was a very low leukocytic count and the comparative absence of peritoneal reaction in this case."

Consultation: "Intestinal toxemia, with probable ileo-colitis. Localization apparently in the cecum; no positive evidence of appendicitis now. Advise that the patient be kept in the hospital for observation. In the meanwhile, I would treat him as a case of appendicitis."

R. Matas.

Pathological Report: Dr. John A. Lanford. "Specimen of appendix measures 9 cm. in length by 1 cm. in width; the outer surface is granular due to a large amount of fibrin on the surface; color is deep red, and flabby in consistency; the

lumen has been incised; shows mucosa which is red and inflamed at the tip; there is a large amount of pus and necrotic area."

Diagnosis: "Gangrenous appendicitis."

Case 21. Salient Points:

Past History: Irrelevant to facts and symptoms that would aid in the ultimate diagnosis of appendicitis.

Present Illness: Sick 8 days, following eating of green huckleberries; vomited only once, and that on the first day; was given calomel with frequent evacuations as the result, the latter containing mucus and blood; second day he showed improvement, but on the third day was fed beef-steak and from that time became progressively worse. Vomiting, tenderness, constipation and significant elevation of temperature are warning symptoms. The abdomen, just prior to the operation, is rigid, and apparently the child is in much pain; both thighs are flexed on the abdomen.

Operated by Dr. Wm. Kohlman. "Free fluid in peritoneal cavity apparently pus."

Pathological Report: Dr. John A. Lanford. "Acute gangrenous appendix."

Case 22. Salient Points:

Past History: Poor appetite and constipated since birth; frequent attacks of intestinal indigestion without sufficient cause; underweight; anemia.

Present Illness: Attacks becoming more frequent—pain—colicky in character, becoming more acute with present illness constipation has shifted to a colitis, containing some blood and much mucous.

Operated by Dr. Wm. Kohlman. "Appendix found in classical position, curled upon itself, elongated and somewhat stuffed. The mucous membrane appeared thickened. At lower end was twisted upon itself with a visible constriction and lack of blood supply. Incision of the appendix revealed several pin worms (alive)."

Pathological Report: Dr. John A. Lanford. "Chronic appendix."

Case 23. Salient Points:

Past History: Not important.

Present Illness: On the evening of July 20, 1926, this child seemed unusually hungry and, in addition to his meal, was given watermelon, together with other articles of food, not in keeping with a diet for a boy of his age. During the night

he began to vomit, regurgitating everything, even water. Castor oil was given, and repeated, but was not retained by the child. The vomiting continued the entire day and on the afternoon of July 21, 1926, the family physician was summoned and, after examination, ordered some powders. Though the bowels moved several times, as yet the effect of the purgative had not been noted for it was feared that he had not retained enough of same to have given satisfactory results. Apparently, from what was obtained as the history from the parents and physician in charge, the child grew worse and was removed to one of our local hospitals on the morning of July 22, 1926.

The family physician, after making a careful examination, concluded that the child seemed to have considerable pain in the abdomen, more over the appendiceal region than any other. The blood count was made, and a urine specimen was requested; the interpretation of the former was not in accord with his provisional diagnosis of an acute appendicitis.

Realizing his limitations in handling a case of this sort, he consulted with a surgeon and watchful waiting was their decision. In the meanwhile, the child was showing the effects of this illness; marked loss of weight, acetone breath, repeated vomiting, and the facies of a very ill child. On the morning of July 24, a third physician, a pediatrician, was summoned, who interpreted the findings as a reflex condition caused presumably by pyelitis. The plan of treatment had been modified somewhat, urine specimen was again requested, and an additional blood count was asked for. The fifth day, the child becoming more toxic, the vomiting assuming a projectile type; the vomitus containing a large amount of a dark green bile, with the odor of feces, no food nor water for five days; no marked bowel evacuation for two days, and, at that, only a small amount of coloring matter being obtained through the giving of several intestinal irrigations, in the end returning rather clear, particularly for the last 24 hours, prior to the death of the child. As yet, there is only a slight abdominal distention—this was the condition of the child when he was first examined by me on the afternoon of July 25, the sixth day of his illness.

After questioning the parents and those in charge, it was admitted that the child's discomfort and pain and, to a less extent vomiting, had been somewhat relieved since the afternoon of the fourth day, but since then the distention had become more pronounced. As I approached the bedside, the child was vomiting and had the appearance already described; his pulse, though regular, was fast and very soft, immediately a

differential diagnosis between an acute gangrenous appendicitis with rupture, and an acute intestinal obstruction (intussusception), secondary to an intestinal intoxication, was made.

As there had been no blood nor mucous in the stools, sufficient to lead me to think of the latter possibility, together with the facts of an absence of a mass in the abdomen—the sudden subsidence of the intense abdominal pain, plus the continued elevation of temperature, all seemed to confirm the former as the correct diagnosis. In order to be absolutely sure, I assisted in giving an irrigation, most of which returned clear, a small amount being but slightly colored. Then a positive diagnosis, consultation written, and an operation asked for, to be performed within the shortest period of time.

Consultation Record is as follows: "There was a history of indiscretion of diet the day before the onset of the present illness. Whether or not this was the initial factor responsible for this attack or occurred in the way of a coincidence is difficult to tell. But the case is plain, exhibiting the following points:

(1) a. Leukocytosis, with increase in neutrophils, 77 per cent.

b. Leukocytosis, with increase in neutrophils, 64 per cent less but still significant.

(2) Abdominal pain, more in the region of the appendix, which became general with increased abdominal distention.

(3) Continued vomiting and fever—the former very pronounced—containing bile in large quantities, and the suggestion of fecal matter.

(4) Facial expression indicates shock; irrigation does not relieve rigidity nor distention and only a slight fecal colored fluid is seen when an irrigation is resorted to.

In view of the points mentioned, the case appears to justify surgical intervention, and therefore I believe an exploration should be performed immediately."

Dr. Charles James Bloom.

Operated by Dr. Edmund L. Leckert and Dr. Harry Heiman. After the child was under the influence of the anaesthetic general abdominal rigidity was evident. The operation was performed late in the afternoon; all four physicians being present. The report of the operation is as follows:

"Through a right rectus incision about 4 inches long the rectus muscle was split and the peritoneum found very much adherent to the abdominal wall. After the opening of the peritoneum,

pus escaped, the suction apparatus being used to free the peritoneum from the pus. Mercurochrome 2 per cent was used inside of the peritoneum cavity.

"The appendix was not located."

Drs. E. Leckert and H. Heiman.

The child grew gradually worse and died the following day.

Discussion:

(1) Vomiting. Regurgitation at first, becoming projectile in character; the vomitus exhibiting in succession food, colored fluid, clear fluid, again becoming colored, green, more intense in color and finally, fecal in character, and not amenable to treatment either direct or indirect.

(2) Fever. This is more or less a common symptom associated with gastro-intestinal disturbance for the first 24 or 48 hours—the maximum elevation is recorded at this time and not at the end. In other words, a continued elevation of temperature, or increasing amount of fever in an intestinal intoxication should always suspicion either an associated appendicitis, or pyelitis. Occasionally, an otitis or a meningitis will simulate an intestinal condition with vomiting as a secondary symptom.

(3) Abdominal pain. Subjective symptoms are not a criterion of a child's condition. There is a doubt in my mind regarding this little fellow putting his hand over the appendiceal region. My experience does not coincide with the belief that in the ordinary run of cases and in all the atypical ones, the child can not tell you where the pain is, much less point to a definite area. To the contrary, pain in the abdomen is generally referred by children to the umbilicus or to any of the lower three quarters. But one point that allows no dispute—when pain is abruptly relieved with sedative or a narcotic in acute abdominal disease, the appendix has ruptured.

(4) The blood:

7/24/26, T. W., 11,750; s. l., 21%; l., 1.2%; N. 77%; E. 0%; B. 0%.

7/25/27, T. W., 9,500; s. l., 28%; l., 1.7%; N. 64%; E. 1%.

(5) Absence of fecal matter, limited flatus, and finally an ileus together with a sudden cessation of pain should have been a warning.

Case 24. Salient Points:

Past History: Pains in stomach since 3 years; very anemic; no appetite; considerably underweight.

Present Illness: Did not apparently improve and it was deemed advisable to give this child the benefit of a doubt.

Operated: At Charity Hospital—history not obtainable.

Pathological Report: Not obtainable.

Case 25. Salient Points:

Past History: Very pale, no appetite, prone to all diseases.

Present Illness: Slight nausea and vomiting; some rigidity on right side; constipation; prostrated.

Operated by Dr. Louis Levy. "Chronic appendix."

Pathological Report: Dr. M. Couret. "Chronic appendix."

Case 26. Salient Points:

Past History: Headaches, backache, feels poorly, constipated, secondard anemia, elevation of temperature, markedly underweight.

Present Illness: Abdominal pains; general in character, radiating to right inguinal quadrant, elevation of temperature and some shock.

Operated by Dr. Julius Isaacson. "Chronic appendix."

Pathological Report: Not obtained.

Case 27. Salient Points:

Past History: Has never been sick up to present attack.

Present Illness: Characterized by vomiting, pains, rigidity of abdomen, elevation of temperature and constipation.

Operated by Dr. Julius Isaacson. "Chronic appendix."

Pathological Report: Not obtained.

Case 28. Salient Points:

Past History: Had been ill since one month with a chest cold but no visible intestinal disturbance.

Present Illness: Since one week the child has been vomiting and his bowels have been obstinately constipated. With this his cold has seemed to become aggravated and he has had a continuance of fever—a maximum of 101°. For the past 24 hours, though everything has been given, the bowels have failed to be evacuated. A diagnosis of pneumonia was made, and the condition of his abdomen was ascribed to this cause and

diagnosed as a toxic or paralytic ileus. Subsequently a pediatrician was called in consultation and placed in charge of the child. He diagnosed the case as appendicitis and consulted two surgeons with the idea of having him operated upon. It was definitely decided upon that the condition was not a surgical one. The writer was called in consultation the day before the child succumbed and made a tentative diagnosis of a possible ruptured appendix and peritonitis.

Operated by Dr. R. E. Stone. "The peritoneal cavity was opened and much pus encountered with all the pathologic signs of a general peritonitis and ruptured appendix. The patient had marked evidences of a general peritonitis. The diagnosis surgically was 100 per cent wrong. The previous diagnosis made by two pediatricians was correct, but due to the fact that the baby had pneumonia it was thought to have a paralytic ileus."

Pathological Report: "Acute gangrenous ruptured appendix."

Case 29. Salient Points:

Past History: For past three years has been suffering from pain in right side. Elevation of temperature.

Present Illness: Pain in right inguinal region has become more acute; colicky in character and at times there is marked rigidity of the right rectus muscle.

Operation by Dr. R. E. Stone. "Kinked, stuffed appendix with infected blood vessels and pus at the tip."

Pathological Report: Dr. John A. Lanford. "Chronic appendicitis."

Case 30. Salient Points:

Past History: Always a very delicate child; marked secondary anemia; tendency to constipation; poor appetite.

Present Illness: Acute attack; pain general; rigidity localized in right inguinal region; elevation of temperature and vomiting.

Operated by Dr. Julius Isaacson. "Chronic appendicitis."

Pathological Report: No report.

Case 31. Salient Points:

Past History: Losing weight; no appetite; pains in abdomen, especially in the vicinity of the umbilicus; vomiting at irregular intervals; colicky cramps; tendency to belch at all times.

Present Illness: Symptoms are becoming more acute and diagnosis is established.

Operated on by Dr. John F. Dicks. "The appendix located, adhesions were liberated and the abdomen closed without drainage."

Pathological Report: Dr. Geo. H. Hauser. "Appendix measured $5\frac{1}{2}$ cm. in length. A cut surface shows the walls and mucosa thickened and the lumen contains fecal matter.

Diagnosis: "Acute and chronic exudative and chronic proliferative appendicitis."

Case 32. Salient Points:

Past History: Pain in the abdomen, underweight, elevation of temperature, constipation, poor appetite.

Present Illness: Recently she has had colicky cramps, more pronounced on the left side; appetite extremely poor, constipation more pronounced, painful micturations and vague general pains.

Operated by Dr. R. E. Stone. "Subacute appendix found containing enteroliths thickened and congested."

Pathological Report: Dr. John A. Lanford. "Chronic appendicitis."

Case 33. Salient Points:

Past History: This child is rather diminutive in build and has been a most difficult one to feed since birth. At times the feeding problem has become most acute and now he has an aversion to all foods and vomits for the slightest provocation. This vomiting occurs at any time of the day, especially in the morning, and its stimulation may be either on the one hand a crying spell, an unexplained factor, or else when forced to eat food. Necessarily, due to underfeeding, he has been constipated his entire life.

Present Illness: Vomiting for 12 hours; pains in abdomen, slightly more pronounced on right side; some rigidity; fever 103° and pain on pressure.

Operated by Dr. Lucian Landry. "The appendix is found decidedly stuffed and clubbed in its distal third—subacute appendicitis."

Pathological Report: Dr. John A. Lanford. "Appendix measures $5\frac{1}{2} \times \frac{1}{2}$ —the outer surface is smooth and glistening, light pinkish grey in color and shows no injection of serosal vessels. The end is somewhat distended, a small amount of meso, with a few bits of fat, is attached. Section shows the wall somewhat thickened and the lumen contains very little sera."

Case 34. Salient Points:

Past History: History of constipation; failure to gain in weight; attacks of colicky abdominal pains, recently tendency to frequent movements. Roentgen-Ray conclusions: Pylorospasm, moderate ileo—and colonic—stasis.

Present Illness: For past three days has been complaining of acute "shooting" pains in abdomen. On right side pressure brings forth the expression of pain. The bowels are very frequent and she has an elevation of temperature. "The cecum was found densely adhered and could not be delivered."

Operated by Dr. John F. Dicks. "The appendix was retro-cecal and held down by bands of adhe-

sions about its middle third. After liberating adhesions appendix was removed. Closed without drainage."

Preoperative diagnosis: "Chronic appendicitis."

Post operative diagnosis: "Chronic appendicitis."

Pathological Report: Dr. Geo. H. Hauser. "The appendix measured 6 cm. in length. The cut surface showed the wall and muscosa thickened and the lumen contained fecal matter."

Diagnosis: "Chronic exudative and proliferative appendicitis."

DIAGNOSES.

No.	Clinical	Radiological	Surgical	Pathological
1	Acute	—	Acute	Acute
2	Chronic	—	?	Chronic
3	Acute	—	Acute	Chronic
4	Chronic	—	Chronic	Chronic
5	Chronic	?	Chronic	Chronic
6	Chronic	Chronic	Chronic	Chronic
7	Chronic	Chronic	Chronic	Chronic
8	Chronic	Chronic	Chronic	Chronic
9	Sub-acute	Appendicitis?	Sub-acute	Chronic
10	Sub-acute	—	Sub-acute	Chronic
11	Acute	—	Acute	Chronic
12	Chronic	Chronic	Chronic	Chronic
13	Acute	—	Acute	Acute
14	Acute	—	Acute	Acute
15	Acute	—	Acute	Acute
16	Acute	—	Acute	Acute
17	Acute	—	Acute	No report
18	Acute	—	Acute	Acute
19	Acute	—	Acute	Acute
20	Sub-acute	—	Acute	Acute
21	Acute	—	Acute	Acute
22	Chronic	—	Chronic	Chronic
23	Acute	—	Acute	Acute
24	Chronic	—	Chronic	Chronic
25	Chronic	—	Chronic	No report
26	Chronic	—	Chronic	No report
27	Chronic	—	Chronic	No report
28	Acute	—	Acute	Acute
29	Chronic	—	Chronic	Chronic
30	Chronic	—	Chronic	No report
31	Chronic	Chronic	Chronic	Chronic
32	Chronic	Chronic	Sub-acute	Chronic
33	Sub-acute	Sub-acute	Sub-acute	Acute
34	Chronic	?	Chronic	Chronic

Key: ? — where no definite opinion is made, but appendicitis is suspected.
 — where no picture was made.

No report: Case 17 specimen dissected; the records of cases 25, 26, 27 and 30 were unfortunately destroyed at one of our institutions due to a flood of the record room.

DIAGNOSIS.

While it is admitted that appendicitis in the infant is unusual, and in childhood—uncommon—at the same time it appears to me that all of us are unquestionably failing to diagnose cases that rightly belong to this group. This admission is applicable to the profession as a whole—indeed the pediatrician is as much at fault as the general practitioner, and is reflected in the following chart:

<i>Yearly Incidence</i>	
Years	Cases
1916	1
1919	1
1920	1
1921	2
1923	1
1924	2
1925	3
1926	5
1927	7
1928 (first six months)	11

Recapitulation—More cases have been diagnosed by me in the past 18 months than in the preceding 12½ years. At best, with all the facilities we have at our command, appendicitis, especially the chronic type, is very difficult to diagnose in the child.

Ochsner's⁽³⁶⁾ (1902) cardinal symptoms—pain, tenderness, nausea and vomiting and rigidity of the abdominal muscles overlying the appendix, unfortunately hold true in but a small per cent of our cases.

SYMPTOMS.

The following are the common symptoms encountered in this clinical picture and will be discussed in sequence:

- (1) Pain.
- (2) Nausea.
- (3) Vomiting.
- (4) Acidosis.
- (5) Belching.
- (6) Temperature.

- (7) Abdominal tenderness, abdominal rigidity; abdominal distention.
- (8) Flexion of thigh on abdomen.
- (9) Bowel disturbances.
- (10) Pain on micturation.
- (11) Rectal examination.
- (12) Appetite.
- (13) Blood findings.

Unimportant:

- (14) Nervous symptoms.
- (15) Headache.
- (16) Hysteria.
- (17) Skin eruptions.

DIFFERENTIAL DIAGNOSIS.

Unfortunately, limited time precludes my discussing each condition in turn—however, the first two will be discussed in detail, and will, perhaps, obviate future mistakes.

A differential diagnosis must be made from the following:

- (1) Pneumonia.
- (2) Paralytic or toxic ileus.
- (3) Calculi (ureter).
- (4) Pyelitis.
- (5) Peritonitis.
 - a. Streptococcus.
 - b. Pneumococcus.
- (6) Abdominal tuberculosis.
- (7) Intussusception.
- (8) Malignancy.
- (9) Intestinal parasites.
- (10) Ulcers.
- (11) Acidosis.
- (12) Gastro-intestinal indigestion.
- (13) Chronic intestinal indigestion.
- (14) Typhoid and para-typhoid fever.
- (15) Hysteria.
- (16) Acute arthritis of hip.
- (17) Vertebral arthritis.
- (18) Salpingitis.

DIFFERENTIAL DIAGNOSIS OF ACUTE
APPENDICITIS.*

	<i>Pneumonia</i>	<i>Appendicitis</i>
(1) History	Generally secondary—preceded by cold or cough.	Usually primary—if secondary—previous intestinal upset.
(2) Facies	Anxious expression—alae nasi—playing noticeable—flushed.	Drawn expression when rupture takes place—pale.
(3) Vessels in neck	Marked pulsation.	None visible.
(4) Respiratory signs	Quickened respiration—abdominal breathing—expiratory grunt.	Absence of breathing signs.
(5) Abdominal tenderness	Upper quadrants—right and left—No more intense on deep palpation.	Local if uncomplicated—More marked on deep pressure.
(6) Abdominal pain	Not common—Constant—Usually referred to right side.	Always present—Colicky—General at first—becoming local with rupture—absence of pain.
(7) Vomiting	Precedes the diagnosis and not constant. (14 per cent Helmholz) ^(36a)	Occurs during the entire attack—associated in 70 per cent of cases (Helmholz).
(8) Diarrhea	Common.	Uncommon—usually alternating with constipation.
(9) Rectal examination	Negative.	Positive—Tenderness on right side.
(10) Rest	Sleeps peacefully at times.	Never quiet—always restless.
(11) Temperature	Usually high—At times hyperexia.	Not constant. 99° to 105°.
(12) Blood count	15,000—40,000.	Average 10,000 to 20,000. At times leukopenia or normal count.
(13) X-ray examination of chest	Positive—even with negative physical signs.	Negative.

*Mayo Clinic (Helmholz) with modifications.

Adams and Berger⁽³⁷⁾ (1922) found in 145 cases of pneumonia in children from two to fifteen years of age, 17.5 per cent had been incorrectly diagnosed as acute appendicitis.

ILEUS.

Emphatically speaking, I do not believe that a paralytic or a toxic ileus is ever present in a child. At times in respiratory processes there has been marked distention of the abdomen with limited expulsion of flatus—especially in pneumonias—this is the nearest approach. But a definite, clear-cut ileus has never been in my practice and has not been described by

those whose experience justify satisfying conclusions.

Two cases Nos. 23 and 28 were diagnosed as such, but a closer perusal of these children and surgical interventions proved them to be general peritonitis, secondary to a gangrenous appendix, and not a paralytic ileus.

PAIN.

Pain, the most constant symptom, was observed in the larger proportion of my cases—absent in about 15 per cent. There are times when the physician does not witness the attack—it is over in a few seconds—but the parents' description of its presence is too vivid to be overlooked.

The classical textbook cases—the ones we all diagnose—where pain over McBurney's point is elicited, is seen in but a few cases occurring in childhood. It is doubtful to me, even in these children, whether at the onset of the attack the pain was localized in the lower right quadrant.

Where the reader has been able to follow his cases, all types included, it has been his experience to find the pain more pronounced in the region of the umbilicus and above it rather than in the expected quadrant. When examining your case, if nature has not flexed the thigh on the abdomen—you do it—for in your examination a slight rigidity may preclude your obtaining pain on pressure where no other signs of it were gained either through previous examinations or subjectively from the patient. Flinching means much. *Do not place too much reliability in what the child tells you.* Colicky abdominal pains should be thought of seriously. When present are very significant—indeed placing the appendix in the category of being eliminated first in a differential diagnosis. In a few cases extreme weakness, general pallor or pallor around lips are expressions of pain in those too young or else unable to tell one of their particular distress. *Frequent umbilical pain should arouse the suspicion of an indigestion and frequent indigestions of an appendix.* Extreme pains are essentially either the forerunner of a rupture; a kink of the appendix or the presence of intestinal parasites within the appendix. Remember that—with rupture temporarily at least—there is an absence of pain, only to return when general peritonitis is evident. It is poor judgment to mask a questionable attack with a drug until you are sure of your diagnosis. If you doubt pain, permit the child to sit in the erect position. If pain is absent he will not complain—if it is influenced by the appendix he will refuse to sit in that position.

CHART.

Pain—General, 7 cases.

Right inguinal region, 10 cases.

Umbilical and upper quadrants, 13 cases.

Extreme, 7 cases.

Minor, 27 cases.

Constant, 16 cases.

Intermittent, 15 cases.

Not classified, 3 cases.

NAUSEA, VOMITING, ACIDOSIS AND BELCHING.

Vomiting is a common symptom of appendicitis; it may occur with each feeding; it may or may not bear relation to food, and is not periodic in its manifestations, occurring both day and night.

Richter⁽³⁸⁾ (1924) mentions it occurring in 79.16 per cent at the onset of his two hundred and eight cases. In certain instances it may not be the initial symptom, but as the process increases, ultimately, in the end, in some form or other, it will become part of the picture.

Emesis may either be in the light of a regurgitation—the common type—or occur in selected cases, as projectile vomiting. With the latter, rupture, abscess (not recorded in this series) or peritonitis are likely responsible for the severity of the symptom.

In a few cases the vomiting may be so trivial and the vomitus so small in amount as to escape the attention of the parent until such a time is reached when either the occurrence increases in number, or the attacks in intensity—then it is recognized. Vomiting can become a very troublesome part of appendicitis—so exaggerated at times that the mention or sight of food may be sufficient to produce vomiting.

Belching, either after a meal, or between meals, with or without nausea, is almost certain an indication of appendicitis.

Acidosis—recurrent acidosis—associated with intestinal disorders—where there are no indiscretions of diet, increasing in number of spells and duration, is essentially appendicitis.

CHART.

Vomiting—

- a. Marked, 13 cases.
 - b. Not marked, 21 cases.
- Aversion to food, 2 cases.
- Acidosis, 9 cases.
- Belching, 4 cases.

TEMPERATURE.

Temperature may not be a criterion of the severity of an acute attack, for at the onset an elevation of 99° may be passed unnoticed. On the other hand, a gradual increase, or an abrupt rise, should justify the suspicion of suppuration—generally under 103°, in a few instances reaching 104°.

Fever may be absent entirely in the chronic cases. In certain children, however, at irregular intervals, during the 24 hours, if peroidic recordations of the temperature are made, slight elevations will be noted. In three of this group, the patients were subnormal.

BOWEL DISTURBANCES.

Our attention to “something out of the ordinary” is often aroused when the matter of frequent bowel disturbances are discussed. Unmistakably—habitual constipation has its story—lack of appetite, aversion to food, unbalanced diet, atony of bowels—a vicious circle. Where is the primary trouble?

And then the other extreme—diarrhea. “No matter how careful I am about his diet, my child has periodic attacks of diarrhea,” or “my child has frequent evacuations every day, regardless of her diet.” With both stories, frequent purgations follow. And lastly there is the combined type diarrhea, alternating with constipation—exceptional but diagnostic.

TABLE.

Constipation—marked	5 cases
Diarrhea	4 “
Constipation alternating with diarrhea....	4 “
No definite picture, but tendency to constipation	21 “
Total	34 cases

In the future, it will be my routine to examine the feces, not one, but several, in an attempt to determine whether or not intestinal parasites play an important part in predisposing children to appendicitis. Unfortunately, only six examinations were made on individual children, repeated once, and of those, three had ova of pin worms, one of round worms, and three were negative. Strange to relate, that the three cases where pin worms were found in the appendix, had negative feces examinations prior to their operation.

ABDOMINAL TENDERNESS—ABDOMINAL RIGIDITY—ABDOMINAL DISTENTION.

It is rather difficult, in certain children, to separate tenderness, rigidity and distention. Usually, tenderness and rigidity are associated, and if the process has continued, either diagnosed or undiagnosed, distention will eventually be seen. In chronic cases, tenderness is more apt to be present than in acute cases, for when the latter is the type, the rigidity, at times very marked, prevents one from properly palpating the abdomen. Distention is only met with where rupture has taken place, where general peritonitis has followed the former, or else, in a limited number of children, where constipation and eructations are extreme. This is apt to be more gastric than intestinal distention.

In practically every case with the slightest peritonitis, in retrocecal appendicitis and in all acute and sub-acute manifestations, the right thigh will be flexed on the abdomen. One of the most important aids in the diagnosis of acute abdominal disease is the early reaction of the viscera contained therein. In the early stage, of the acute cases, there is rigidity of the affected side, and the other symptoms that go with it, but as the process becomes more pathological and extensive, the abdomen at first below the umbilicus, and later involving the entire area, reacts, and one feels on palpation a sense of rigidity, better, a touch, revealing increased abdominal ten-

sion when the hand is placed gently on the abdomen.

PAIN ON MICTURITION.

My attention has often been called to painful micturition being an associated symptom of appendicitis. This has not been so in my cases, although a small proportion of these children had pyelitis sometime before their present illnesses. In three cases, pain on micturation was complained of.

RECTAL EXAMINATION.

Karewski⁽³⁹⁾ (1897), and Seltzer⁽⁴⁰⁾ (1901) as noted by Kelly⁽⁴¹⁾ (1905) have demonstrated that in almost every case in which the disease has advanced beyond the appendix, the extension will undoubtedly take place along the right pelvic wall where inflammatory processes can be felt.

This method does not seem very practical when applied to children, and perhaps, can only be done satisfactorily just at the time when the child is beginning to be anaesthetized. In only three cases was this examination employed and apparently substantiated at the time of operation. What has been your experience in this regard?

Kelly⁽⁴²⁾ (1905) seemingly enthusiastic, remarks "examination by the rectum should never be neglected since the adult finger reaches higher in the infantile pelvis than that of the adult, so the suspected area is more easier touched."

APPETITE.

A poor appetite may not be indicative of appendicitis, but a diseased appendix may be responsible for a lack of appetite. While no gastric examinations have been made in this series, there appears to be a hypoauidity, for when chronic cases are given dilute hydrochloride acid in small amounts, this temporizes the condition temporarily and the appetite is noticeably improved.

CHART.

Picky (a desire for certain foods).....	8 cases
Poor	16 "
Good	8 "
Aversion to food.....	2 "
<hr/>	
Total	34 cases

BLOOD FINDINGS.

Fowler⁽⁴³⁾ (1899) first called our attention to its significance. Robins^(43a) (1900) mentioned blood counts as helpful aid in the diagnosis of appendicitis. Kelly⁽⁴⁴⁾ (1905) in his masterpiece contribution does not discuss this topic at length.

Sondern⁽⁴⁵⁾ (1905) published a very useful chart of the blood examinations in surgical diagnosis—which is of great value with some modifications in the interpretation of appendicitis in childhood.

THE SONDERN BLOOD PICTURE CHART.

Slight increase in polymorphonuclears indicates mild infection.

Decided increase in polymorphonuclears indicates severe infection.

Slight increase in polymorphonuclears with slight leukocytosis indicates mild infection with definite resistance.

Decided increase in polymorphonuclears with decided leukocytosis indicates severe infection with good resistance.

Decided increase in polymorphonuclears with slight leukocytosis indicates severe infection with poor resistance.

Decided increase in polymorphonuclears with no leukocytosis indicates severe infection with no resistance.

Progressive increase in polymorphonuclears with diminishing leukocytosis indicates increasing severity of infection and decreasing resistance.

Gradual decrease in polymorphonuclears with decreasing leukocytosis indicates improvement.

As concerns the various blood manifestations in chronic cases—two cases, Nos. 7 and 8, are given—marked leukopenias. As a matter of interest, the improvement in these children after appendectomies were amongst the most marked in this series.

ANEMIA.

More than seventy-five (75) per cent of the chronic cases revealed a secondary anemia, and of this number eighteen (18) children had a hemoglobin less than 60 per cent.

EOSINOPHILS.

In contrast to the findings of other clinicians—a marked eosinophilia was not encountered, and in the three instances where pin worms were discovered in the appendices these cases showed no alteration in the number of these cells whatsoever.

ACUTE APPENDICITIS

Case 1	{	1st count	6,000; N. 84
Within 4 hrs.	{	2nd count	4,500; N. 86
Case 3	{	1st count	15,000; N. 90
Within 6 hrs.	{	2nd count	15,000; N. 91
Case 9	{	1st count	8,000; N. 75
Within 24 hrs.	{	2nd count	12,750; N. 80
Case 10	{	1st count	14,750; N. 75
Within 12 hrs.	{	2nd count	9,100; N. 67
		3rd count	17,500; N. 76
Case 11	{	1st count	8,000; N. 74
Within 4 hrs.	{	2nd count	5,000; N. 60
Case 14		1st count	18,150; N. 83
Case 33		1st count	15,000; N. 83
Case 24	{	1st count	17,250; N. 75
Within 12 hrs.	{	2nd count	12,000; N. 90

ACUTE RUPTURED APPENDICITIS

Case 15	1st count	16,500; N. 89
Case 18	1st count	19,000; N. 86
Case 19	1st count	28,000; N. 88
Case 21	1st count	16,000; N. 82
Case 23	1st count	11,750; N. 77
Case 16	1st count	15,000; N. 83
Case 20	1st count	12,000; N. 89
Case 21	1st count	16,900; N. 82
Case 28	1st count	13,200; N. 66

Three days
apart

2nd count 10,800; N. 53

CHRONIC APPENDICITIS WITH MARKED

LEUKOPENIA

Case 7	1st count	3,750; N. 50
Case 8	{	1st count 2,750; N. 61
	{	2nd count 3,000; N. 54

APPENDICITIS FROM OTHER SOURCES.

These different types of appendicitis are mentioned but not discussed:

- (1) Tuberculosis.
- (2) Actinomycosis.
- (3) Carcinoma.
- (4) Sarcoma.
- (5) Appendicitis in a hernial sac.
- (6) Appendicitis in complication with acute infectious disease.

AFTERMATH.

The aftermath pertinent to improvement in this study, not only in weight, but in general health, is as follows:

Marked improvement	20 cases
Some improvement	5 "
Questionable improvement	4 "
Too recent to be judged	2 "
Died	3 "

These cases that did not show marked improvement are the ones who have been operated on for a period less than three months.

ROENTGEN-RAY DIAGNOSIS OF APPENDICITIS.

Roentgen-ray diagnosis of appendicitis *per se* has but little value, unless the appendix remains filled at the end of 48 hours, and more especially positive if there is marked cecal stasis associated with it. If an appendix cannot be visualized, this, in itself, would not negative the appendix, for a fecolith could obstruct the lumen, the kink could be located at the base, or else, obstruction within other than those mentioned are possibilities. If the emptying is delayed for 24 hours alone, but the organ is definitely sensitive to palpation, it is reasonable to accept that it is diseased. A marked pylorospasm, with a partially filled appendix at the end of 24 hours, should call our attention to a serious consideration of this possibility. In other words, a roentgenologic diagnosis must be considered a part of the clinical manifestations and in itself must not be accepted as conclusive.

RADIOGRAPHIC EXAMINATIONS OF GASTRO-INTESTINAL TRACT
(Operative Cases)

Number	STOMACH	Small Intestines	COLON	APPENDIX	OBSERVATION		CONCLUSIONS
					24 HOURS	48 HOURS	
2				Long, patulous-sensitive with stasis			Chronic appendix
5	Empties slowly — Small retention —5 hours		Stasis. Dilatation colon and sigmoid	Not visualized	Moderate pylo- ileal stasis; col- onic irritation		Pylorospasm; ileal stasis; colonic irri- tation
6	Spasm-pylorus	Ileal Stasis +	Caecal Stasis	Not visualized		Retro-caecal filled appendix	Retro-caecal appen- dix
7	1 Year Apart 1st Series—Reten- tion 4 hours 2nd Series— Marked pyloro- spasm. Retention 6 hours		Marked dilatation —descending. Moderate stasis	Not visualized	Moderate colonic stasis	Slight colonic sta- sis	1st Series—None 2nd Series—Pyloro- spasm; stasis of colon; dilatation descending colon.
8				Partially filled—un- usually long	Partially filled ap- pendix		Probable pathologic appendix
9		Moderate ileal stasis	Spasm-marked— large bowel	Filled appendix— (partially)	Marked caecal and colonic stasis		Reflex spasm of colon —probably the ap- pendix
22	Hypermotility			Kinked	Tip of appendix filled		Chronic appendicitis
26	Fish-hook type— atonic	Ileal stasis		Moderate caecal and colonic stasis			Ileo-caecal and ileal stasis
31	Pylorospasm marked	Ileal retention	Stasis-cecum	Retro-caecal kinked appendix			Retro-caecal kinked appendix
32	1½ empty at end of 3 hours 1½ retention at 6 hours		Ileal stasis—marked	Partial filling of ap- pendix		Marked colonic sta- sis; spasticity co- lon—(marked)	Pylorospasm — ileal stasis with adhe- sions—hypermo- tility and spasticity of large bowel— —possibly chronic appendix
33			Marked irritability	Constriction at base. Caecal stasis and filled ap- pendix		Definite retention in region of ap- pendix	Pylorospasm; colon- ic irritability; pro- bable chronic ap- pendix
34	Pylorospasm		Stasis	Not seen	Moderate colonic stasis		Pylorospasm, ileo- stasis, moderate colonic stasis

MORTALITY.

In this study, three (3) died and thirty-one (31) recovered. Of the three that succumbed, two were seen in consultation after they had been ill for five days or more, and one just twelve hours before death—the latter being moribund when brought into the hospital. Two of these three were under two years of age. In other words, every one of these cases responded to surgical intervention, and other than a few exceptions where rupture had taken place, had uneventful recoveries.

Other statistics regarding the death rate are as follows:

Bolling⁽⁵⁰⁾ (1924), under 5 years, 20%.

Beekman⁽⁵¹⁾ (1924), 35% under five years in first series. 25.6% under five years in second series.

Schlossman⁽⁵²⁾ (1922), in the nursing almost 100%; in the second year, 72%, between 1st and 2nd years, two to three times greater than in the adult.

CONCLUSIONS.

1. Appendicitis in infancy is very rare—less than a hundred cases have been collected under two years of age, two of which are reported in this series; relatively more common than generally accepted between ages of two and fourteen years.

2. Pain, vomiting, abdominal tenderness and rigidity, fever and altered appetites are the more frequent symptoms.

3. "Intestinal upsets," "indigestions," "stomachaches," "obstinate constipations," "unaccountable diarrheas"—should be studied and purgatives withheld until appendicitis has been eliminated.

4. Frequent attacks of acidosis—associated with abdominal pain—becoming more marked and more frequent—where indiscretions of diet have not been practiced—are potential cases of appendicitis.

5. Be positive that you have eliminated pneumonia before appendicitis has been diagnosed.

6. Utilize roentgen-ray and laboratory facilities in doubtful cases—especially the blood; make repeated counts—the differential count being of much more value than the total white count and the combination of both invaluable.

7. Paralytic ileus in a child is usually peritonitis.

8. In this series of thirty-four cases—only three succumbed. Of these all were seen after they had been ill for many days and were moribund and died within twenty-four hours after examination. With these excluded all of the remaining thirty-one recovered. The mortality as reported by others may exceed 35 per cent.

9. Remember what Kelly said: "Every case of frank appendicitis should be operated upon if seen in the early stages of the disease."

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DISCUSSION.

Dr. John F. Dicks: My talk on this subject will be brief, as I just wish to run over a few important points brought out by Dr. Bloom. The first point he stresses is that appendicitis in infants under two years is a rare condition; the second point stressed is that appendicitis from that age to ten years is more common than the average physician thinks.

I have put down some statistics taken from a report by Dr. J. B. Deaver of Philadelphia on 1000 cases of appendicitis, in which the age incidence corresponds with Dr. Bloom's observations. In Deaver's cases from 1 to 10 years of age, 3.33 per cent had appendicitis; from 11 to 20, as the person grows older, the rate was 28.63 per cent; from 21 to 30, it was highest, showing 37.48 per cent; from 31 to 40, there was a decided decrease to 19 per cent; from 41 to 50 it was 8 per cent; from 61 to 70, 0.64 per cent; from 71 to 80, 0.10 per cent. In other words, his statistics coincided with Dr. Bloom's statement. From the age of one to ten years, 3.33 per cent had appendicitis, which is a fairly large percentage for children—higher than we think in that age of childhood.

Another point of interest to me is the roentgen-ray diagnosis of appendicitis. Is it an appendix that is visualized that is positive for appendicitis, or is it one that is not visualized? If after 48 hours the appendix still contains some of the barium then you might say it is suspicious of appendicitis, but in arriving at a diagnosis we should consider our other findings in conjunction with the roentgenographic study. To my mind, not visualizing the appendix does not mean that the patient has appendicitis.

What Dr. Bloom said about the blood count is an interesting feature. Not many of us know that in infancy the leukocytes and the small mononu-

clears cross at the age of five. In other words, in early childhood the polys are low and the small mononuclears are high.

I have enjoyed Dr. Bloom's paper very much and he deserves much credit for the way he has presented it.

Dr. E. Denegre Martin: In discussing this subject I will try to confine my remarks to a few facts. One of the most difficult things in my experience has been the diagnosis of appendicitis in infants. You may have all the symptoms and all of the suggestions that have been given for years and yet fail in your diagnosis because each case is a study in itself.

The most difficult thing, of course, is to get a history—that is almost impossible. I am speaking now of infants under five years of age. When you are called in to see a patient, watch it; note the general appearance and position of the child, frequently the right leg is drawn up. Then you will have to arrive at your diagnosis by exclusion, because we know of cases that have been mistaken for pneumonia, intussusception, diarrhea, etc. However, with a careful examination you can exclude pneumonia. Intussusception can be recognized from the history; usually there are frequent stools, tenesmus and a palpable mass. If the child can be quieted, you may by palpation be able to locate the pain; this, it is true, may be in any part of the abdomen, but by repeated palpation eventually pain will be located on the right side—not necessarily in the iliac fossa, sometimes under the costal arch. Very often the appendix is retrocecal and down in the pelvis. Rectal examination always helps, but it is a difficult thing to do. Introducing the finger into the rectum will cause as much pain as the condition. Of course, this can be done under an anesthetic (and that is frequently true in the adult case as well) where you can control them. The question is to watch these children. You will usually find what you are seeking, not by deep palpation, but gentle palpation, and if the children are old enough and you win their confidence, they will co-operate.

Another thing not often mentioned in symptoms is a child crying and complaining of pain, then in a little while experiencing relief; if the pain persists and is more or less located in the region mentioned above, you may pretty well decide that it is a case of appendicitis. The roentgen study and blood count are sometimes of assistance, but are not always to be depended on and are to be considered only as adjuncts in diagnosis. You have to arrive at the diagnosis by elimination and very often you are taking a chance. The temperature is not always high, only in ex-

ceptional cases, until there is a rupture and peritonitis develops.

Today we are making more diagnoses and the appendiceal abscess is less frequently encountered. Formerly these abscesses were more common because we were not able to make the diagnoses. We are making more and earlier diagnoses today because the specialist (pediatrist) as well as the general practitioner, is looking after these conditions. Appendicitis in children is commoner than we think. Take the history of adults today, or young people, and many will give you a history of a previous attack. Of course, in childhood the lumen of the appendix is more patulous and there is apt to be drainage, so they get over an attack. This, however, is not the case with the adult. After the age of ten years I believe appendicitis is almost as common as in the adult. The youngest case I have seen was in an infant two days old. The appendix was five inches in length. It seems that the younger they are the larger the appendix in proportion.

I do not think I can add much to this, but would emphasize that in appendicitis in children there is no rule to which you can adhere to arrive at a correct diagnosis. You must make it by exclusion. Gather all the information possible by observation, physical examination, roentgen-ray and laboratory study, obtain from the parents what history you can, and after you have quited and won the confidence of the child, you will make a diagnosis very much better than if you are in a hurry.

Dr. E. D. Fenner: I cannot allow as carefully prepared and interesting a paper as this to pass without comment, particularly as it is a subject in which I am naturally and deeply interested. There is one thing which has to be borne in mind, and that is when men get up and discuss appendicitis in childhood the job of sticking to the infant (as so beautifully brought out by Dr. Bloom) is about as difficult for the average man who is talking as it is for the fellow who is not accustomed to it to stand up on ice.

Dr. Royster, in his recent monograph on appendicitis, says: "Probably the most positive evidence that a case of abdominal distention and pain is not appendicitis is that the pain should begin in the right iliac fossa; if appendicitis, it begins around the umbilicus and later settles in the right quadrant."

A point I would like to call attention to is this: I am convinced that a good many cases of appendicitis die and are never recognized, particularly in very young children. In the good old days here in New Orleans (this may come to the minds of some of the older men at this meeting), when the "acido-

sis madness" had the profession absolutely by throat and children were being killed off in numbers every year with huge doses of soda, I am sure that many were buried under the diagnosis of acidosis who died of appendicitis. In connection with this matter, the relation of acidosis to appendicitis, Professor Camby, author of many text books in French and Professor of the University of Paris for many years, something like twelve to fourteen years ago, published an article in the "French Archives of Children's Diseases" in which he claimed that all cases of acidosis in children were chronic appendicitis. He reported 150 cases of acidosis with acetonuria, diagnosed as appendicitis but brought no evidence to back his statement. I offered you nothing to bolster your faith in the theory—nothing but his great experience.

When you get a child so young that he cannot tell you where his pain is located, I think you might possibly get some information by rectal examination. But the man that can derive any genuine information in regard to the condition of the appendix by sticking his finger in the rectum of a child eighteen to twenty months old has, in my opinion, a most vivid imagination. With children five to six years of age, when you have achieved a relation with them where they are no longer screaming and will tell you the truth, this procedure may throw some light on the subject. I do not think it is a wise thing for any man to believe that rectal examination in early childhood is going to prove very illuminating in regard to the attacks of appendicitis. Of course, we all admit that the diagnosis of appendicitis in children under two years is exceedingly difficult and I am under the impression that most of these cases we operate on, which prove to be appendicitis, were considered by no means certain diagnoses before the abdomen was opened.

Dr. E. C. Samuel: I wish to say just a few words in regard to the diagnosis of chronic appendicitis. I had the pleasure of looking over quite a number of these cases for Dr. Bloom and would like to correct the impression that the visualization of the appendix is an absolute essential to the diagnosis of chronic appendicitis from a roentgenological standpoint. The appendix that fills in 24 hours and empties is not considered by (or any roentgenologist) chronic appendicitis, when the appendix that fills refuses after being put to empty in 36 to 48 hours, we consider that there is some trouble with it.

In the appendix that will not visualize there should be other signs on which to base your diagnosis. In children pyloric spasm is about 50 per cent more intense than in the adult with chronic appendicitis, and when there is food retention

stomach beyond the four hour period in a young child and the pylorus shuts down tight and refuses to open after some time passes, you must realize that the spasm means something and is responsible for some of the pain.

Again, when these cases of chronic appendicitis have gone long enough there is evidence of inflammation around the ileo-cecal junction; kinks, congenital bands which bind the ileum to the cecum, and other evidence of chronic inflammation from a chronically inflamed appendix.

He merely wanted to enlighten you on this point, that the roentgenologist does not consider the viscosity of the appendix essential in making a diagnosis of chronic appendicitis.

Dr. Charles J. Bloom (closing): I appreciate the discussions on appendicitis in childhood that have taken place, and in closing would like to emphasize one or two points.

The first has reference to my position in regard to roentgen-ray study as an aid in diagnosis. Fortunately, in the limited time allotted to the reading of the paper, the part covering that phase of the subject, which I will now read to you, was expedited. "Roentgen-ray diagnosis *per se* has but little value unless the appendix remains filled at the end of 48 hours, and more especially positive when there is marked cecal stasis associated with it. If the appendix cannot be visualized this, in itself, would not negative the appendix, for a fecalith could obstruct the lumen, the kink could be located at the base, or else, obstruction within other than those mentioned are possibilities. If the emptying is delayed for twenty-four hours alone but the patient is definitely sensitive to palpation, it is reasonable to accept that it is diseased. A marked pro-spasm with a partially filled appendix at the end of twenty-four hours should call our attention to a serious consideration of this possibility. In other words, the roentgen-ray diagnosis must be considered a part of the clinical manifestations and, in itself, must not be accepted as conclusive."

Regarding Dr. Royster's interpretation of pain, as mentioned by Dr. Fenner, I tried, as far as able, to bring out that point that in appendicitis in children you seldom find that the pain is primarily localized in the right inguinal fossa.

I am glad to hear the comments regarding examination by rectum. I had so little knowledge of what I was anxious to know what the experience of others had been.

RADIUM IN CANCER OF THE CERVIX.*

GENERAL REMARKS WITH REPORT OF SOME CASES.

JOSEPH COHEN, M. D.,

NEW ORLEANS.

Cancer of the cervix can be cured and radium can cure it. Cancer is a disease of the cell, perhaps of the cell nucleus, which results from an intrinsic physico-chemical disturbance. It always commences as a local disease, developing with time, the local appearance being always preceded by a precancerous state when a cure is much easier. The disappearance of the original signs and symptoms, both local and constitutional for a period of five years, constitutes the accepted interpretation of cure.

The incidence of cancer in general is high. Sir James Paget during a conversation some forty years ago remarked that he was convinced everyone would die of cancer if he or she lived long enough. The U. S. Census Bureau reports that one in every ten adults now living in the United States will die of cancer. Between the ages of 45 and 65 one in every five deaths among women is due to cancer. Cervical cancer ranks third in the human family of carcinomata, its annual toll in the United States alone being ten thousand.

Cancer of the cervix is on the increase and this increase is an actual one and not a relative one. Neither our refined and more accurate methods of diagnosis, nor the lengthening of the span of life can account for it; and in its affection, it is not partial, embracing all peoples and all countries; and how unheeding we are of its early approach is illustrated by the fact that doctors' wives as well as those of laymen come in the late stages for treatment.

Its cause is not fully known. There are various theories, some based on experi-

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mental observations, others on clinical ones, some on statistical data, others on fervent hopes and quackish speculations, and each has its supporters. But from all these, some repeatedly proven observations have been accepted as truisms. For all practical purposes it is neither contagious nor infectious. It is not inherited—one may inherit a certain susceptibility which under the proper stimulus may render the individual more prone to develop the disease. Given a susceptible individual chronic irritation will produce the cancer, but cancer itself is not inherited.

Cervical cancer is not created over night nor in the Biblical six days. The early signs and symptoms are not typical, therefore, is a diagnosis sometimes difficult. With a slow onset it has a protracted pre-cancerous stage that should be looked upon with suspicion. The irritated, the inflamed, the discharging cervix, the lacerated and the ulcerated cervix, no matter how mild in appearance, should be carefully watched and treatment instituted promptly. Each of the above may be a forerunner of cancer. If necessary a biopsy is justified for diagnostic purposes. The majority of the best opinions, gleaned from observations on laboratory animals as well as human beings, find no tenable reasons against biopsy. Once the disease commences it spreads rapidly, either by direct continuity or through the lymphatics; therefore, will an early diagnosis coupled with prompt and proper treatment give more cures.

How can we prevent it? The exact cause being unknown, there is no specific, but certain measures help. In this, the physician as well as the patient plays an important role. Cleanliness and cancerless would be a good slogan. Personal hygiene on the part of every woman should be advocated. A daily cleansing douche or two should be religiously taken. It is as needful as cleaning her teeth. She should be encouraged to seek periodic examinations. She should be taught that cancer

of the cervix in its early stages is a curable disease, that the great mortality comes from neglected cases, the same as the mortality from neglected appendicitis is greater.

James Ewing says "Cancer of the genitals is due to uncleanness," and W. Sampson Handley remarks that there is a certain form of cancer which never occurs in Jewish men, connecting this fact with the ritual operation performed upon all Jewish male infants. Ewing further adds that the cancer of the uterus is distinctly less frequent in Jewish women than in some other races, and that circumcision would reduce male cancer 2 per cent. Might not we hope that this hygienic measure would also reduce cervical cancer? We, doctors, should always be on guard and taught to recognize early signs and symptoms. Lacerations should be repaired early; cervicitis and endocervicitis should be vigorously and promptly treated. These measures would reduce the number of outpatients developing cancer and fewer would need treatment.

The treatment should be based on the extent of the growth. Where there is present a fixation of tissue indicating metastases, the prognosis is unfavorable. Biopsy and the microscope will disclose the degree of anaplasia or also the degree of differentiation, the prognosis depending on the degree of histologic malignancy. A high degree of anaplasia is always associated with a poor prognosis while a high degree of differentiation means a favorable one. On account of the uterus being sandwiched in between the bladder and the rectum and flanked by the ureters an extensive operation, such as the Wertheim, is attended by a high initial mortality.

Cancer of the cervix lends itself ideally for radium treatment whether early or advanced. In advanced cases radium applied locally affords much better results than obtained by any other method.

cluding surgery. In the hopeless cases, the palliative results are superior to those surgery can offer. In early carcinoma radium is used exclusively in some clinics. From the results obtained with radium in the past ten years at the Memorial Hospital in New York, Burton J. Lee, the attending surgeon, concluded that cancer of the cervix is essentially a radium case and that the results are better than surgery can offer. Early diagnosis and early effective treatment are the keynotes in radium therapy. Treatment by a dose sufficiently large to cure cannot be repeated a second time in the same place, for the biologic reason, that radium produces two different effects in normal tissue and in neoplastic tissue; the latter becomes progressively radio-immune, while normal tissue becomes more and more radio-sensitive. Therefore, repeated doses will cause obstruction and necrosis.

How does radium act? This is a mooted question, but one fact is certain: There is destruction of the terminal arterioles resulting in a loss of blood supply and lack of nourishment to the tumors accompanied by the formation of a cordon of dense fibrous tissue. If the dosage is insufficient, this belt of fibrous tissue may encapsulate some of the living cancer cells which due to the lack of nourishment may remain in a dormant state for years and then suddenly bestir themselves. Repeated examinations will immediately recognize this reappearance and additional radium therapy may take care of these remaining cells. In the war against cancer we must always be on guard, prepared to destroy the enemy at its every appearance. Examinations of patients should be made with a view not only to diagnosis but to prognosis and treatment and we must not confuse the necrosis due to excessive dosage with recurrence due to insufficient dosage.

What is the sufficient dose? Each case will answer that question for itself. Destructive radiation must reach each

cancer cell, otherwise the growth may recommence; at the same time this radiation intensity must be so small as to affect the normal surrounding tissue as little as possible since this tissue later assumes the work of regeneration and replacement of the parts destroyed by radiation. In pre-cancerous conditions non-destructive doses may cure, but in a diagnosed cancerous condition initial destructive doses only should be used, and this is in line with the conclusion drawn by the Harvard Cancer Commission, that small doses of radium are not only of little benefit to the patient but they may increase the rapidity of the development of the disease.

In applying the radium, measures against its dislodgment and for the protection of the bladder and rectum should be taken, thus preventing vesico-vaginal and recto-vaginal fistulae. This, following the method of Dr. Julian G. Hirsch can be accomplished by the use of lead sheeting imbedded in paraffin moulded to suit each individual case. Besides the local effects of radium there are constitutional ones noticed immediately in the form of prostration, nausea, anorexia, increase in temperature, and in addition, the more remote ones, observed especially, in the blood stream, such as leukopenia, increase in sedimentation rate, diminution in hemoglobin and in the numbers as well as the volume of the red cells. But this is only of short duration, lasting for about three weeks. As soon as possible, the cervical canal should be probed periodically to prevent a stenosis with an accumulation in the uterus of the discharges, whether pus, blood or otherwise. A follow-up system, including the taking of careful notes, should be instituted in each case, to see the results and to guard against any recurrence.

Permit me to demonstrate the value to the patient of the policies herein advocated by the recital of the following: It is my good fortune to be placed in the unique

position of being the third generation, so to speak, in the same office to observe a number of cases of cancer of cervix, some of which are the ones cited below. These were first treated by the late Dr. William Kohlman, who was amongst the pioneers in the use of radium in New Orleans, and after his death by Dr. Julian G. Hirsch, who has been ill since 1924, and since then by me. Briefly summarized they are:

Case 1. Mrs. N. H., aged 34 years. September 26, 1922, diagnosis, carcinoma of cervix. Vaginal examination showed extensive ulcerative lesion of posterior lip. Treatment on September 27, 1922, 2400 mg. hrs. radium. December 6, 1922, 2400 mg. hrs. April 18, 1923, deep roentgen-ray therapy was used. Drs. Samuels and Bowie applied this deep roentgen-ray therapy with the first machine in New Orleans. Today, six years later, patient is well and attending to household duties.

Case 2. Mrs. J. D., aged 54 years. August 18, 1921, vaginal examination revealed cervix indurated, bleeds easily, broad ligaments do not show any marked infiltration, uterus movable. Diagnosis, advanced epidermoid carcinoma, squamous cells. Treatment: August 19, 1921, 1200 mg. hrs. radium. August 23, 1921, 2550 mg. hrs. radium. Today, seven years later, she is well and taking care of her daughter's house.

Case 3. Mrs. M. L., aged 40 years. Vaginal examination, September 20, 1920, showed a cervix enlarged to size of hen's egg, hard and indurated, bleeding easily, tissue breaking about cervical canal, uterus fairly movable, induration about right adnexia. Diagnosis, Epidermoid cancer of cervix and glands. Treatment: Ligation of both internal iliacs with removal of large gland on left, plus 1800 mg. hrs. radium September 23, 1920, and 2035 mg. hrs. on October 9, 1920. Today, eight years later, she is well and working.

Case 4. Mrs. J. S., aged 57 years. Vaginal examination July 8, 1920, showed the cervix completely destroyed from cancer of uterus. Treatment: July 9, 1920, 3200 mg. hrs., August 26, 1920, 1200 mg. hrs., December 3, 1920, 750 mg. hrs. A mother of many children, they mourned her as lost on learning of her cancer at the first visit. Today, eight years later, she keeps house for one of them and has outlived the rest as well as her doctor.

Case 5. Mrs. M. E., aged 50 years, April 4, 1919, was found to have carcinoma of the cervix. April 5, 1919, ligation of internal iliacs plus 500 mg. hrs. April 12, 1919, 500 mg. hrs. Today, nine years later, she is enjoying the hospitality of her daughter.

If these cases of advanced cancer of the cervix, a living tribute to radium, are still present with us from six to nine years after the initial treatment, how many more could be saved by following the suggestions offered here?

DISCUSSION.

Dr. E. Denegre Martin (New Orleans): I enjoyed the paper and am sorry to have missed the first part. I have treated quite a number of these cases and had a similar experience as that of Dr. Cohen. We are coming more and more to the expediency of using radium in lieu of operating. My results have been remarkable, especially in advanced cases.

My first experience with radium therapy was about ten years ago, at the time it was being introduced. A patient came to me complaining of a profuse, bloody discharge. Examination showed the entire vaginal vault filled with a cauliflower growth. We removed the growth and introduced 100 m. hrs. of radium for a 15 hour exposure. Subsequently there was good healing with no evidence of remaining growth. This result, at the present time, we are repeating daily. I have another case of eight years' standing, a woman of forty years of age, who is living and well today. In all, I have had about twenty of these cases; those receiving treatment in the early stages are all well, while those who come to us in the later stages all lived several years.

The beneficial results derived from radium therapy far exceed those obtained by surgery at this time. I believe we will come to the selection of radium altogether in carcinoma of the cervix. However, in using radium it should be applied in large doses, but must be carefully handled and only by those of experience. I have seen vesico-vaginal fistulae, recto-vaginal fistulae and many other distressing conditions following its application.

What we must do, is to make an early diagnosis or at least try and prevent that very condition that might develop later in the neglected case. Patients who come with lacerated, eroded and infected cervices, no matter what the age, should be looked after at once. Always explain to them the necessity of this examination. A good many of these conditions, lacerations and erosions of the cervix can be cured by a simple operation—sometimes merely a cauterization will suffice. Each case should be carefully studied. Do not limit your examination to the cervix. I wish to take this opportunity of including the breast. I am convinced that malignancy, if taken in the early stage, before metastases sets in, is curable.

Any growth in the breast, whether malignant or not, should be removed. Never fail to enlighten your patients in regard to the importance of these examinations and gradually the existing prejudice against examination, especially in the country where people object so seriously, will be dispelled. Each individual so instructed at time of examination will tell her neighbor and thus spread the gospel that cancer is preventable if discovered sufficiently early to remove the source of the disease and definitely stamp it out.

I believe the possibilities of radium are unlimited and that it is one of the great therapeutic measures introduced into surgery.

Dr. D. I. Hirsch (Monroe): My experience with radium, in the few cases that I have had, does not tally with the successful results reported by others. Dr. Barrow has some very interesting statistics—they all get well. But my cases have been like the story of the wonderful doctor with the sick horse. The veterinarian came along and gave him some medicine. A friend heard about it. "Doctor," he said, "I heard about the medicine you gave your horse and wish I had some for mine." He received it. Two or three days later he returned and reported to the doctor: "I gave my horse that medicine and it died." The doctor replied: "So did mine."

Until I heard Dr. Martin today, my impression was becoming more and more fixed, because of the unsatisfactory results in my cases of malignancy following treatment, that cancer was incurable, or that possibly there were grades of malignancy in tumors of the same type. However, I am willing to continue the radium therapy, because surgery will not cure.

All patients of mine who received applications of radium were referred to Dr. Barrow for treatment.

Dr. S. C. Barrow (Shreveport): I do not believe that we ought to limit ourselves to the use of radium in the treatment of any case of carcinoma of the cervix. I have been treating these conditions for a good long time, and right from the beginning, as I recall it, fail to put my finger on a case that I have attempted to treat by radium only and am convinced that if some of the men were to back their radium radiation up with filtered roentgen-ray therapy their results would be different. In advanced cases of course all we can do is to palliate them.

I want to say to you this, there is no difference in the biological action of radium than there is in roentgen-rays that will pass through as much as one-half millimeter of copper. If you have roentgen-rays that are sufficiently penetrating to pass

that filtration, it has been proved beyond a doubt that cancer cells are inhibited in their growth.

There are a few cases of carcinoma that are limited to the cervix, but while the large majority have not any palpable demonstration of being beyond the cervix, nevertheless they are there. We know that radium, the quantity ordinarily used, will not affect to the extent of death of the carcinoma cell more than two to two and a half, possibly three centimeters from where you put it. Now what is the use of going in there and blowing out what is obvious and leaving carcinoma cells that are going to produce metastases and leave you with the impression that radiation is no good. It has been shown and can be shown in any laboratory that a dose of radiation can be distributed throughout the female pelvis by the combined use of radium application and roentgen-ray exposure just as effectively as you can to any point you may touch.

I do not see the advantage in considering the difference in the grades of malignancy. I believe in giving the maximum dose the tissue will respond to and be through with it. That is the course we try to follow, and when we get them with only a reasonable degree of advancement, lots of them get well.

Dr. H. V. Sims (New Orleans): This discussion is a very deep subject with me, because I have had the gynecological clinic at Charity Hospital for ten years and during that time have watched those poor unfortunates who apply there in such large numbers for treatment in this condition.

The question that repeatedly presents itself to me is: what really is an early case of carcinoma of the cervix, and how often do we run into that type of case? Personally, in the past two years I have seen but two that I thought came under the classification of the really early case, both discovered accidentally during the routine examination of tissue from the cervix. The vast majority of cases that come under our observation are what we call advanced. We still believe in surgery for the early case and divide carcinoma of the cervix into the early, the borderline, the moderately advanced and the advanced case.

Now, with regard to treatment. At the present time I think it is generally accepted that surgery is indicated in the early case, while radium therapy is advanced in all other types. As this includes the borderline and the moderately advanced, as well as the advanced cases, considering the infrequency with which the early case is encountered (in ten years, out of hundreds of cases I discovered but two), it would seem that radium

therapy is indicated in practically all cases of cancer of the cervix. In the usual case, the radium is used preferably by applying a 50 mg. tube into the cervical canal and implanting 10 mg. needles into the surrounding area, allowing this to remain in place 24 hours, giving a total of 2,400 m. hours.

The results of this treatment are wonderful. When the patient returns six weeks later for examination, the sloughing, infected, foul, bleeding mass has practically disappeared and in its place we see nothing but an empty vault, with sometimes a vestige of the growth remaining, which is taken care of by a second application of radium. The patient again reports after two months; at this time the vault is completely healed with no evidence of carcinoma remaining, just the appearance of a scar. The outlook seems promising but, unfortunately, the experience is that in many of these cases when they come back again, although they have gained weight and are apparently enjoying good health, there is every evidence of metastases to the lumbar glands, to the liver, or high up, after which we do not see the patient any more.

The point that baffles me so (and as I say, it is a very serious subject with me because I see so many of these cases in this great clinic at Charity Hospital) is how can we detect the early case? How can we get to the early case? That brings to my mind the subject of periodic general examinations which the different medical societies are advocating. Should we succeed in getting the public to respond, especially women between the ages of 35 and 45, we might find some of those cases of carcinoma that we do not see until moderately advanced. I believe that cancer of the cervix is a very rapidly growing type of tumor, otherwise we would pick up an early case occasionally.

Radium has come to be the accepted treatment in cancer of the cervix and, in line with what Dr. Cohen says, some very happy results are obtained. The local lesions disappear and the patient is very comfortable.

Dr. Joseph Cohen (closing): I thank the doctors who have spoken for the interesting points brought out in discussion.

Convince the public that there is a remedy for cancer and they will come to us for periodic examinations of their own accord. Heretofore, when we discovered that a patient had cancer, the usual comment was: "Well, poor unfortunate, we cannot do anything for her." But today we can hold out the hope of a cure and once we succeed in spreading the gospel that malignancy is curable we will get the early case that we are all looking for.

THE ROENTGEN-RAY TREATMENT OF MALIGNANT BONE TUMORS WITH REPORT OF CASES.*

C. P. RUTLEDGE, M. D.,

SHREVEPORT, LA.

A rather critical review of the available literature reveals the fact that there is no large series of cases of malignant bone tumors treated by roentgen-ray reported by any worker or group of workers. Among those who have done pioneer work in this field and have reported results of their work might be mentioned Herendeen, Bloodgood, Costolow and Soiland.

Until rather recently surgery was the only form of treatment considered and usually meant an amputation or resection of the bone involved. Even now surgery is advised by some of the outstanding surgeons and the use of the roentgen-ray discredited in the treatment of some bone lesions which often yield very readily to roentgen-ray treatment. I have especial reference to Ewing's tumor or small round cell sarcoma. The rapidity with which these tumors disappear under roentgen-ray therapy is at times almost magical. They are often not recognized until after they have metastasized at which time the most radical surgeons would hardly dare amputate. In these cases the roentgen-ray treatment is extremely beneficial, for these metastases as well as the primary lesion melt away like snow in the sunshine. I will later show slides of one such case.

The giant cell tumor, or as it is sometimes called, giant cell sarcoma, in the majority of cases yields very readily to roentgen-ray treatment. I may be criticised for calling this a malignant bone tumor. In the greater percentage of cases it is benign but not necessarily always so. In former days many limbs were amputated unnecessarily for this condition which we know today can be and is cured

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

often by curettment and roentgen-ray; and Bloodgood reports excellent results with curettement followed by chemical and thermal cauterization. Soiland and Costolow report a case of adamantinoma of the lower jaw treated by roentgen-ray and radium that has been well for four years. Numerous cases of carcinoma of the bones, nearly always metastatic, have been reported as markedly improved after roentgen-ray treatment, being kept free from the excruciating pain for months and even years. I remember very well indeed a patient who came to me more than a year ago with numerous metastases in pelvic bones and femora. She had been taking osteopathic treatments and her pain was relieved only by large doses of morphine. Deep roentgen-ray therapy over the pelvis and hips gave her complete relief from pain and she is now doing her own house work and taking care of her seven children.

Chondrosarcomas respond very slowly to radiation, sometimes weeks elapse before relief of pain and any discernable change in bone is seen.

The advisability of biopsy is still a debatable question. If you treat a patient on roentgen-ray and clinical diagnosis and he gets well your diagnosis will certainly be questioned; if you have a biopsy you are criticised. The three cases which I report today all had biopsies. I can't say that it was detrimental to them; one had metastases when biopsy was performed, the other two show no demonstrable metastases as yet.

Probably a good rule to follow would be that suggested by Dr. Bloodgood. If you feel sure that you are going to amputate, by all means have a biopsy. If it shows a benign lesion you have saved a patient's limb for without the biopsy you would have operated upon the roentgen-ray and clinical findings.

I thoroughly agree with Dr. Bloodgood in a statement that he made at a recent meeting of the Radiographical Society in

New Orleans: "If you cannot get a report on a biopsy at once and contemplate surgery of a bone lesion, give roentgen-ray treatment at once as the lesion will often react quickly to roentgen-ray treatment and the patient saved from operation."

I wish to report three cases, two of which are small round cell sarcoma and the other small spindle cell sarcoma.

Case 1. Female, aged 7 years, reported for treatment February 8, 1927. Her chief complaint was a gradually increasing swelling of the lower third of the left leg. Past medical history: No history of any serious illness. Family history: Father and mother living and well. No history of malignancy, lues or tuberculosis in family. Present illness: About eight months ago she hurt the outer side of the left ankle by striking the lower third of fibula while playing. There was some bruising of the soft tissues but not enough to stop the child from walking. Not long after the injury there was a noticeable increase in swelling of the soft tissues but little or no pain. She had had a roentgen-ray examination recently, and amputation had been advised by a prominent orthopedist which was refused. Examination: Fairly well nourished child. General examination negative. There was a rather rounded outward expansion of the lower third of the left leg with marked infiltration of the soft tissues. The enlargement is very hard but only slightly tender on pressure. Patient walked with very little pain or limp. Wasserman negative. Roentgen-ray examination showed a marked destruction of the lower third of the left fibula beginning immediately above the epiphysis and extending upward for a distance of 3 or more inches. There is no expansion of the cortex but a general destruction of the bone which was almost totally destroyed in the center of the lesion. The surrounding soft tissues were very heavily infiltrated. Biopsy showed a small cell sarcoma according to Sarcoma Registry report. Treatment: Four areas were treated: anterior—posterior and right and left lateral over the lesion. The following factors used: KV 200, TSD 50 cm, 5 MA, filter 1/2 mm. copper and 1 mm. aluminum and 15 minutes to each area. This treatment was given in two days, two areas for 15 minutes each for two days.

In less than one month the soft tissue swelling had almost completely disappeared and some bone regeneration was noticed. There was no pain. In two months marked bone repair was noticed and in six months complete regeneration of bone took place. Repeated roentgen-ray examinations of the chest have shown no evidence of metas-

tases and the child today is clinically well but her parents were advised to have periodic roentgen-ray examinations of the chest made and warned to expect metastases in the future. Should they materialize, I believe we can control them for a long time by roentgen-ray treatments.

Case 2. Male, aged 43 years. Farmer and cross-tie maker. Chief complaint: Pain and swelling of the left shoulder for five or six months. Present Illness: Onset gradual with pain in left supra-scapular region, made worse by exercise, helped but not entirely relieved by rest and hot applications, swelling noticed two months ago, pain, aching in character. Trauma: Thinks he bumped shoulder against the windshield of his car six months ago. Used to carry cross-ties on his shoulder but none for the past five years. The pain increased rapidly until two months ago it was very severe; since then has diminished considerably, the swelling has increased rapidly for the past four or five weeks. There has been no fever. He has lost fifteen pounds of weight during the last six months. He has had no treatment except hot applications and liniments. No previous physical examination. Family History: Father died at 73 years of age with stomach trouble. Mother is living and well, age 63 years. Three brothers and four sisters living and well. Previous History: No history or symptoms of venereal infection. Has always been healthy until present illness. Examination: April 9, 1926—Well developed and nourished. The use of the left shoulder is limited, otherwise nothing abnormal. Over the left side of chest, posteriorly, above the border of the ribs there is a pigmented mole with a considerable overgrowth of hair. Mole is wine colored about the periphery and black in the center. The periphery measures about three inches by three quarters of an inch; the raised black portion is about two and a quarter inches by one-half inch. Patient states that this has not increased in size, and that there is no irritation. Has existed since birth. There is no thickening of the tissue beneath and infiltration about the mole. Local Condition: Limited to the left shoulder. There is a rounded tumefaction about three inches in diameter overlying the region of the point of the shoulder and behind the acromion. On palpation there is a rounded firm, but not hard, mass of tissue, smooth in contour and outline lying just beneath the skin and not adherent to it, but firmly attached to the bony frame work of the scapula. The deltoid muscle, which should overlie it, seems to merge into it, and its borders toward the midline are even more poorly defined. There is no marked atrophy; the joint movements are free in every direction, except in abduction which is moderately limited. Patient states that he experiences some feeling of numbness and ting-

ling in left forearm and hand, somewhat more marked on the ulna side. Wasserman was negative. Blood: Erythrocytes, 4, 110,000, leukocytes, 10,250. Urine: Negative No Bence Jones reaction. Roentgen-ray Examination: Roentgen-ray examination shows almost complete destruction of acromion process there being only a very small portion of the outer border still present. Biopsy: Section obtained by Dr. Guy A. Caldwell, forwarded to Bone Sarcoma Registry. Diagnosis: Small spindle cell sarcoma of left scapula, springing from the acromion process. Treatment and Progress of Cases: On May 3 and 4, 1926, deep roentgen-ray therapy was given over the left shoulder and scapula. Three areas were used—antero-posterior, posterior-anterior and lateral. The following factors were used: 200 KV, 6 MA, TSD 50 cm, filter $\frac{1}{2}$ mm Cu, 1 mm al, aperture-open. A total of fifty minutes A.P., forty minutes P. A. and twenty minutes in lateral positions respectively. Patient suffered some nausea following treatment. In four weeks the mass on left shoulder had disappeared, pain has ceased and no limitation in motion persisted. In two months time, the acromion process showed almost complete regeneration but was somewhat roughened in outline. The last roentgen-ray examination made more than six months ago showed complete regeneration of the acromion process.

The man is clinically well now and refuses to leave his farm long enough to present himself for re-examination. His family physician says he has not lost a day from work due to disability since one-month after his roentgen-ray treatment. Numerous roentgen-ray examinations of chest show no signs of metastasis, nor is there other evidence of metastases.

Case 3. Reported through the courtesy of the Neathery Clinic, Sherman, Texas. G. E. Henschel, Roentgenologist. Female, aged 45 years, applied for treatment August 12, 1926. Chief Complaint: Pain and loss of voluntary motion of the right lower extremity of seven months duration. Present Illness: Fourteen months ago she fell from a gallery striking her right hip. She was confined to bed for one day when the pain stopped and she was able to walk. Two months later her right hip began to pain her, at which time her condition was diagnosed as rheumatism; her teeth were removed, she was given anti-rheumatic remedies, massage, baths and sent to Hot Springs. Seven months ago she became bed-ridden and has lost voluntary motion of the right lower extremity during this time. Past History; family history, etc., seem to have no bearing other than as reported above. Roentgen-ray examination made August 12, 1926 shows marked destruction of the lower half of the body of the right ilium extending through the acetabulum into the

right hip joint. One deep roentgen-ray treatment was given at this time over pelvis, centering target over body of right ilium; the following factors being used:: 200 KV, 3 MA, TSD 24", T 160', filter $\frac{1}{2}$ mm cu and 1 mm al, which on the machine used, gives about 9/10 of an erythema dose.

Pain left within six hours so that patient slept without a narcotic. September 28, 1926, the patient was able to walk with a crutch. Roentgen-ray examination made at this time shows marked new bone formation. On above named date another Roentgen-ray treatment was given using same factors as in previous treatment, except that one mm of copper was used, and four hours treatment given.

Films made November 19, 1926, November 6, 1927, and January 20, 1928 show some rarefaction in body of right ilium, a well formed acetabulum and good preservation of the reproduced bone.

November 6, 1926, patient complained of cough at which time a treatment of chest was advised but not given until December 28, 1926. Formula: 170 KV, 5 MA, TSD 20", filter $\frac{1}{4}$ mm cu and 1 mm al, T 40', one area over entire chest, about 9/10 skin reddening dose. Films made of chest November 19, 1926 showed numerous metastases to chest, which were more extensive on films made December 26, 1926. Lateral views of chest at this time show a very large tumor of the sternum.

Roentgen-ray examinations made February 2, 1927 and January 20, 1928 showed almost complete disappearance of the lung metastases at the time of the former with possibly some recurrence upon latter examination. A small gland removed from the left supraclavicular space proved to be small round cell sarcoma. The site of gland removal healed by first intention after one Roentgen-ray treatment. On February 10, 1928, the Roentgenologist was again called in consultation at which time a large mass about the size of a large grapefruit was found in the right lower quadrant. Patient was very much emaciated, vomited all of her food and was about to die. A similar roentgen-ray treatment to the one given December 28, 1926 was given at this time. This was followed by increasing vomiting for one week. Murphy drip was given. In two week the tumor had disappeared and patient was able to digest roast pork and cabbage and was able to visit her neighbors.

March 5, 1928 the patient's chest was covered with nodules, the size of tip of the little finger, from posterior axillary line on left to same line on the right. Eight areas were laid out and through each 9/10 of an erythema dose was given through 1 mm. aluminum. In two weeks all of the nodules were gone.

A report from her on April 2, 1928 states that she is again bed ridden, her face abdomen and legs are swelling and she has to void about every half hour. The urine contains a slight amount of albumen but bladder contains no residual urine.

CONCLUSION

1. Roentgen-ray therapy is of proven value in the treatment of malignant bone lesions.

2. Malignant bone lesions should be given roentgen-ray treatment, regardless of whatever other form of treatment is contemplated.

3. We should report our cases not only to Radiological Societies but to general meetings of this type as very little appears in the general medical journals on this subject.

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DISCUSSION.

Dr. Guy A. Caldwell (Shreveport): The speaker had the opportunity of seeing with Dr. Rutledge the second case shown—that of sarcoma of the acromion process of the scapula. It was most gratifying to see the tumor melt away after treatment and to observe the rapid improvement in the acromion process. The improvement in the patient's general condition and in his use of the shoulder joint were equally remarkable.

Formerly there was a tendency to regard all tumors of the bone, with the exception of exostosis, as being potentially malignant. As a natural consequence early and high amputations were resorted to in all such cases. Many limbs with benign tumors were thus needlessly sacrificed, while those with malignant tumors resulted in metastases and death in spite of radical surgical procedures. This gave rise to a general lack of confidence in the surgical treatment of bone tumors, and the profession turned to the field of roentgen-ray therapy for help. The use of roentgen-rays and radium were found to be curative in a few bone tumors, helpful in others, and ineffective in still others.

It became apparent, therefore, that every means should be used to differentiate the various types of bone tumors, and then to determine what treatment would be beneficial to each. Increased knowledge of the subject obtained from roentgen-ray studies, surgical reports, follow-up records, and pathological research has improved the situation. It is now possible to recognize a large group of bone tumors as definitely benign from their histories, examinations, and roentgenograms. Conservative surgical removal is indicated in such cases and when properly done, yields excellent results. Amputation is an unnecessary catastrophe. Roentgen-ray therapy is in most of these cases ineffectual.

There is a small borderline group of bone tumors falling between the benign and malignant types. In these cases local surgical removal may suffice but amputation is often necessary. Roentgen-ray treatments are of little use.

A large group of these tumors is malignant—that is, they are progressively destructive, invade the soft tissues, metastasize and result in death. For the greater part these may be recognized from the history, examination, and roentgenograms. Conservative surgical measures, such as local excisions, are contraindicated in this group of cases. Radical procedures such as amputations, are mutilating and give no better result than can be obtained with roentgen-ray and radium therapy. There can, therefore, be no argument for surgical intervention of any kind in this last group of frankly malignant tumors. It should be realized

that the most radical amputation will not save the patient's life and it probably will not even prolong his days. Roentgen-ray and radium therapy properly administered, will, on the other hand, certainly prolong the patient's life and make him more comfortable and it is far simpler and more desirable from his point of view than amputation.

In the late stages, when there are sarcomatous metastases in the pelvis, spine, skull, and lungs, and the pain becomes so agonizing that even large doses of morphia are ineffective, roentgen-ray treatments are a veritable godsend in relieving the suffering patient. Although the treatments are not curative so much relief is given by them that they should never be withheld.

Before undertaking any kind of treatment for a bone tumor, a working diagnosis must be established. This requires the aid of an experienced clinician, an expert radiologist and an excellent pathologist. If it then be diagnosed as one of the non-malignant types, conservative surgical measures are indicated rather than treatment with roentgen-rays or radium. If it fall in the small borderline group, amputation may be necessary, or more conservative surgical measures together with roentgen-ray therapy, may result in a cure.

If, however, it be found malignant, roentgen-ray and radium treatment will suffice to prolong the patient's life and make him more comfortable and are preferred to amputation which could do no more.

Dr. H. W. Meyerding (Rochester, Minn.): I regret not having heard both of these interesting papers. However, I gather that there is an optimism here which is very encouraging in view of the hopeless outlook which has been held regarding malignant bone disease in the past, due, no doubt, to more careful pathological knowledge and the more careful differentiation of bone tumors.

It is of first importance to determine the benignancy and malignancy of the tumor in order that we may accurately judge the benefits of various forms of therapy. We have gone further, following the diagnosis of malignancy, by again differentiating into four groups the degree of malignancy. It is interesting to note that in groups one and two of low degree of malignancy a high percentage of cures may be effected (as in epithelioma), while in groups three and four surgery and other forms of treatment are often of little avail.

Radiotherapy in the treatment of bone tumor is, in my opinion, still in an experimental stage. Careful study of the various groups of malignant bone tumors by pathologists, roentgenologists and

surgeons, extending over a period of years, will be necessary before a definite value may be placed upon radiotherapy. Such studies are being carried on in various parts of the country under the guidance of the Sarcoma Committee of the College of Surgeons which extends full co-operation to the profession. As a result the profession will greatly benefit because of this scientific research in which accurate knowledge as to diagnosis and results of various types of treatment will have been arrived at.

Benign, localized tumors may be cured by excision, but multiple types of fibrocystic disease, osteochondromas and chondromas present greater difficulties. They do not react favorably to roentgen-ray or surgery and frequently present considerable difficulty, requiring multiple operations often followed by further recurrence.

Giant-cell tumors may be treated surgically in early cases, with cure with a minimum loss of time and expense to the patient. However, many come after such size and extensive destruction of bone has taken place or are so localized that surgery is extremely difficult and is at times counter-indicated; here radiotherapy should be given a thorough trial.

Ewing's endothelioma reacts most favorably to the roentgen-ray and the tumor may entirely disappear after treatment and a practically normal bone appear, radiographically. The difficulty, however, is in late metastasis which end fatally. The osteogenic sarcoma has shown little benefit from radiotherapy and palliative surgery is indicated for the relief of painful tumors and disability wherever the tumor or extremity may be safely eliminated.

How can the general practitioner who has a bone tumor tell how to treat it properly? He may be dealing on the one hand with various degrees of malignancy and on the other with singular multiple types of benignancy, and he must differentiate them. The roentgen-ray affords us in the vast majority of cases this knowledge, although I do not believe that every doctor is capable of making such a definite diagnosis from the roentgenogram as it takes an experienced roentgenologist with good plates to differentiate the various forms of bone tumors, and occasionally it is impossible for the expert to properly diagnose without the use of the history and clinical findings. Even with all the preoperative knowledge at hand there are still occasionally doubtful cases in which surgery is indicated as a diagnostic procedure.

I do not agree with those who say, never do a biopsy, but rather have advocated biopsies in all doubtful cases. The profession has come to realize the value of biopsies in these cases inasmuch as there is often great fear and worry on the part of

the patient when he is confronted with a possibility of a tumor of such a malignant character as a sarcoma. Therefore I believe that we should make use of the history, clinical findings, laboratory findings, and if necessary where doubt exists surgery and a microscopic examination before condemning our patient, in every case where there is any reason to doubt our ability to arrive at a correct diagnosis of the tumor.

When we have kept careful records of the facts thus obtained together with the record of treatment and results we will be able to reclassify our knowledge of various types of malignancy involving bone and give proper value to the various methods of treatment.

Our problem is not always the problem of dealing with the primary growth alone but the metastasis as well. Malignant tumors of the extremities may be removed by surgery without local recurrence or by amputation in the vast majority of cases only to have metastasis occur later. Therefore we look to radiotherapy, toxins or some other form of treatment to control metastasis, and when we find that out we are going to find a cure for malignant tumors of the bone but not until then.

Dr. E. C. Samuel (New Orleans): There is very little that can be added to the excellent presentation of cases by Drs. Rutledge, Fortier and Gately. We have seen the slides and heard what they had to say in as far as roentgen-ray and radium therapy are concerned. But there are one or two points that we have learned in our experience with therapy of the so-called deep type. We do not know what the sequela over a certain period of time is going to be in these patients that have been subjected to deep therapy. In the literature, especially the German literature of this time, we see now and then reports of very disastrous conditions of the superficial skin or deeper layers following six and eight years after deep therapy. I am not wishing to decry the use of deep therapy because in the hands of the specially trained man, who has to be more than a simple roentgenologist, it certainly has its place. We know that tumors of the lymphoid type are more easily affected by any form of radiation than other types, so in consequence we look for a much quicker disappearance, or a much quicker "dent" on the tumor (if I might use that term) than in the carcinoma variety.

Dr. Fortier spoke of the lympho-sarcoma type. We have seen the rapid disappearance of the lesions, but with the disappearance of the tumor, along the point that the original growth was seen, we have seen it spring up in new sites. We have been using radium for about ten or eleven years and deep therapy over a period of five or six

years, and in my limited experience I have never seen a case of lympho-sarcoma that I have considered clinically well. Probably others have, but that is just exactly what our experience has been along these lines.

Radium implantation, of course, has its place in the well selected case, but we have practically given up deep therapy in our treatment at the present time for the reasons I have explained to you in passing just a while ago. What the future will bring us, as far as radiation is concerned, in these types of tumors, time is the only thing that will really be the final judge.

Dr. J. L. Danna (New Orleans): After witnessing this wonderful presentation of cases I hate not to say something, and as my name was used, naturally I am going to rise.

This is a subject for deep and serious thought. I am happy therefore to have Drs. Rutledge and Fortier come here and give us something concrete about a particular class of cases in which they have had such excellent results with radiotherapy. I think Dr. Samuel was the first to use radium and also the first to use deep therapy in New Orleans. As he has just stated, we have only been using radium for about ten years and deep therapy for five years, so the field is still a broad one and there is a great deal of unclassified work which we have not worked out yet. Therefore I congratulate Drs. Fortier and Rutledge on their wonderful results and am glad to have heard these papers.

Dr. C. P. Rutledge (closing): I thank the doctors for their discussion.

In quite a few of these bone tumors metastasis can be controlled by roentgen-ray therapy for a certain length of time and it may be that at some not far distant period we will be able to control them permanently. I hope so. In one of the cases I reported it was nothing less than marvelous how the metastases would disappear under roentgen-ray treatment.

Dr. Bloodgood, discussing this subject before the Radiological Society last December, was comparing the effects of roentgen-ray therapy and surgery in bone tumors of the upper third of the femur and during this comparison he told of an experience he had in tracing thirteen cases of this type reported as cured following amputation. Being curious to find out further details and how they were progressing, he traced them to their source and discovered that one case had been reported by thirteen different men. When the involvement is in the upper portion of the femur, he stated that he would never do an amputation, but employ roentgen-ray therapy. He also made the statement that all bone tumors, while waiting

for biopsy reports, should be radiated. That may be rather radical, but I do not know. Certainly, if we radiate carefully, we can do no appreciable harm.

Dr. Samuels says if you give deep therapy there will probably be a recurrence in five years. In some instances this will happen, but often in three months, if not treated, they will be dead. In some cases superficial roentgen-ray therapy will take the place of deep therapy.

Dr. Lucien Fortier (closing): I have very little to add, but would like to thank the various ones who were kind enough to discuss our paper.

I think Dr. Samuel's pessimism is due to the fact that he followed the German technique. They used extreme doses, especially at the start, and that possibly accounts for the bad effects they had. We are using smaller doses and spreading the treatment over a longer time, and if we are getting any harmful results, they are few and far between.

RADIATION IN SARCOMATA.*

LUCIEN FORTIER, M. D.,

AND

T. T. GATELY, M. D.,

NEW ORLEANS.

It is an established fact that some types of new growths are more amenable to roentgen-rays and radium than others. The simple epithelioma of the skin, for instance, can practically always be cured by radiation if seen before there are metastases to the glands. At the other end of the scale are the carcinomas of the oesophagus, stomach and liver, which are almost never cured by radiation or any means.

In between there is a class for which radiation promises much hope for hitherto incurable conditions, some of the sarcomata. This is not new to you, of course, but we simply wish to emphasize it by presenting a few cases in which we have had more or less excellent results. Some have been treated by radiation alone and in some others radiation has been a valuable adjunct to surgery.

*Read before Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

In the group that received their benefit from radiation alone there are seven sarcomata of lymphoid origin, two fibro-sarcomata, and three unclassified sarcomata one each of the lungs, tonsil and cervical vertebrae. Of the lymphoid group four have had microscopic sections made.

Case 1. Mr. D., referred by Dr. Mouledous, was seen in August, 1923. He had a generalized enlargement of the lymph nodes on either side of the neck, both axillae and inguinal regions and several large masses in the abdomen. One of the glands was removed and reported a lympho-sarcoma by Dr. Couret. He was given a quite extensive deep roentgen-ray bath over all areas involved. The abdominal masses and other enlarged glands rapidly disappeared and the patient returned to work feeling excellently except for a dry throat due to the action of the rays on the salivary glands and an edema of the penis due to lymphatic blockage. He remained well for over two years when there was a recurrence in both epitrochlear regions and in the right axilla. The recurrences were kept under control for another year when the patient finally succumbed after at least three years of comfortable life.

Case 2. Baby C., seen in May, 1923, a patient of Dr. Jones, had a gland removed from the neck at Charity Hospital, which on section was a lympho-sarcoma. A surface pack of radium was applied over the neck. The condition showed rapid improvement and finally cleared up entirely. She is alive and well today, five years later.

Case 3. A case of Dr. Jerome Landry, seen in August, 1924. She had multiple large tumors of lymphoid origin in the abdomen. Laparotomy and microscopic section had previously been done in Meridian. She was practically moribund and was given deep roentgen-ray reluctantly. There was prompt improvement and complete relief eventually. The patient is alive, well and happy today, nearly four years later.

Case 4. Mr. B., a patient of Dr. Louis Levy, operated in August, 1923, when a section was removed from a large abdominal mass. The pathologist reported an undoubted malignancy, probably a carcinoma. The exact character of the tissue could not be determined owing to the amount of necrosis. He was given deep roentgen-ray treatments and responded rapidly. From his reaction we feel the tumor must have been a sarcoma rather than a carcinoma. He is alive and in excellent health today, almost five years later.

The three on which a clinical diagnosis is of sarcoma of lymphoid origin alone was made were 1st. a Mr. M., referred by Drs. Gillaspie & Sou-

chon, with a large mass in the femoral region. In July, 1921 radium needles were scattered through the mass and he was given roentgen-rays treatment over the femoral and inguinal regions. The mass disappeared entirely. He returned a year later with a similar mass in the occipital region which disappeared after deep roentgen-rays therapy. He is alive and well today nearly 7 years after the original condition and 6 years after the recurrence.

Case 2. Mr. M. a patient of Dr. Nelson, had a large ulcerated tumor in the neck and a smaller mass on the right hand. He was given deep roentgen-ray treatment over both tumors. The tumors in the neck responded rapidly and cleared up entirely. The hand however was unaffected. He lived in comfort for over a year when extension of the lesion in the hand, for which he refused further treatment, resulted in his death. It is hard to explain the failure to effect the lesion on the hand excepting that we do know that the same type of tumor will often respond differently in different regions of the body. Or it may be that the tumor in the neck and that in the hand were two distinct types.

The third is a Mr. B. with a large mass in the left cervical region. He was given a series of deep roentgen-rays treatment in February, 1924, with a rapid disappearance of the tumor. As far as we can ascertain he is alive and well today.

Of the two fibro-sarcomata, one was a fibro sarcoma of the posterior naso-pharynx seen with Dr. Dupuy in March, 1922. A section from it was reported as such by Dr. Couret. Radium needles were inserted, the mass disappeared and the boy is alive and well today, 6 years later. The other young man referred in August, 1923 by Dr. Fenger had a section removed at Charity Hospital and a report of fibro sarcoma returned. He was given two series of deep roentgen-rays treatment with complete clinical relief up to a year ago when we last saw him. We believe he is still alive and well.

Of the unclassified sarcomata the sarcoma of the lungs was a metastatic affair from the right breast; removed one-year previously at Charity Hospital by Dr. Murphy. She had numerous masses in both lungs which cleared up rapidly and entirely under deep roentgen-rays therapy. She lived in perfect comfort for over a year with no signs of recurrence, when she died suddenly of a cardiac lesion.

The sarcoma of the tonsil was seen with Drs. Nelson and Dupuy in 1923. Radium needles were implanted in the growth and later deep roentgen-rays therapy applied to both sides of the neck with

a complete disappearance of the lesion. She is alive and well today.

The sarcoma of the cervical vertebrae showed on roentgen-ray examination extensive destruction of the second and third vertebrae. This patient referred by Dr. Simon in January 1926, was also radiographed by Dr. Granger, in whose diagnosis we concurred. At the time treatment was instituted she was bedridden and showed almost complete paralysis of both arms and hands.

She was given three series of deep roentgen-ray treatments and today shows complete bony repair of both vertebrae, is entirely free of symptoms and lives a normal and happy life. This was a most gratifying case to all concerned.

All of these foregoing had no treatment but radiation and all showed marked relief and in some we obtained a clinical arrest at least.

There are four other cases we would like to mention in which an excellent result was had by radiation, plus the cautery, surgery, and Colles toxins. These four were all referred by Dr. Danna. Two were sarcomata involving the antrum of Highmore both seen over five years ago. They were vigorously treated with radiation, cautery and Colles toxins. After a rather stormy course both are alive and apparently well today at least four years after the disappearance of their original lesions.

The third was a sarcoma of femur in a 3-year-old child treated with radiation and Colles toxins seen first in 1923. She too had a stormy course but is today alive and well.

The last is a fibro sarcoma of the thigh treated by surgery and radiation in 1921. She is alive and well and has since married and had a child.

We wish to repeat that there is nothing new or extraordinary in this paper. These things are being obtained by radiation every day in all parts of the country. We simply felt that some good would come of emphasizing an already well known fact namely that great good can be done by radiation in almost every case of sarcoma. There will be disappointments of course. We have had many of them. But the great relief that is given to practically all and the occasional almost miraculous cures that are encountered more than outweigh the disappointments.

DIPHTHERIA*

R. T. LUCAS, M. D.,

SHREVEPORT, LA.

The more you see and know of diphtheria, the more respect it commands. It is such an important disease that we need occasionally to refresh our minds on its main points and keep informed on the latest developments in prophylaxis and treatment. I shall leave out much text-book description in order that I may have time to emphasize those phases of the disease which appear most important and desirable to present before this audience. Part of my discussion will be a review for some of you, but I hope to bring out certain facts that will be of interest to all.

The first clear description we have of diphtheria is by Aretaeus in the First Century, A. D. In 1883 Kleb discovered the diphtheria bacillus and shortly thereafter Loeffler isolated it and infected susceptible animals. The characteristic morphology is best found in young cultures; that is, twelve to eighteen hour growths. Loeffler's methylene blue is the best stain for ordinary use. The bacillus grows best at body temperature. Boiling kills it almost instantly. Protected by a film of mucus as is usually the case, it may live for a long time. The bacillus is not sensitive to cold. The virulence of diphtheria bacilli is highly variable, and the virulence cannot be determined by the severity of an isolated case. The presence of antitoxin in the blood and the possible association of other bacteria have important bearing in determining the severity of the disease in any given patient.

CARRIERS.

Healthy individuals, who may or may not have had diphtheria, may become carriers of virulent diphtheria bacilli without contracting the disease. Many so-called diphtheria carriers are carriers of non-toxic diphtheroid bacilli. Diphtheria bacilli are found in

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the throat three days after the disappearance of the membrane in about fifty per cent of the cases. In about ten per cent of the cases they persist for about two weeks. It is difficult to determine the absence of the bacilli in the throat on account of their possible presence in the tonsillar crypts. In persistent carriers tonsillectomy is the most efficient treatment. An individual with a sore throat giving a positive diphtheria culture may or may not have diphtheria. Naturally, non-diphtheritic infection may take place in the throat of carriers. On the other hand, an individual may have diphtheria and negative cultures be obtained. The usual source of infection is the secretions from the nose and throat of diphtheria patients, convalescents, or healthy carriers. Cats are possible carriers of true diphtheria, although in very rare instances other animals may be a source of infection.

SUSCEPTIBILITY.

There is an individual susceptibility to diphtheria. Those of the same family tend to have a similar susceptibility. It is well known that age is an important factor. The breast-fed infant rarely is susceptible within the first six months of life on account of immunity received from its mother's milk.

SYMPTOMS.

The usual incubation period is one to four days. The onset is usually slow and insidious with malaise and loss of appetite, chilly sensations, slight fever, and headache, and at times complaint of sore throat. I had one patient in which the first symptom noted was a convulsion.

PROGNOSIS.

The prognosis depends upon the duration of the illness, the type of the disease, the age of the patient, and the presence or absence of complications, especially paralysis and pneumonia. As a rule the laryngeal cases have a poorer outlook. Those cases having an increasingly rapid pulse rate, those having a sudden drop to about forty or less in the pulse rate, and those showing cyanosis without laryngeal obstruction or

after intubation or tracheotomy, have a very unfavorable prognosis.

COMPLICATIONS.

Those patients receiving antitoxin late in the disease and those receiving insufficient antitoxin are prone to develop some form of paralysis, the most common of which is paralysis of the soft palate, evidenced by a nasal voice and the possible regurgitation of fluids through the nose. Paralysis of the ciliary muscle of the eye with loss of accommodation, and loss of the knee reflex is fairly common. Paralysis of the diaphragm and heart failure are the most dreaded dangers following diphtheria and are, in the great majority of cases, fatal. Heart failure may occur fairly early and is evidenced by nausea and vomiting. The patient becomes cyanotic, the pulse weak, and the pulse rate may drop to as low as thirty a minute. Numerous other forms of paralysis may occur. One case under my observation became helpless, had to be fed by gavage, had no control over his sphincters, and yet made a complete recovery. The heart and diaphragm are usually involved long before the paralysis becomes so extensive as in this patient. Paralysis may manifest itself as early as the second week, but it may be several weeks before it develops. In post-diphtheritic paralysis not involving the vital functions, the prognosis is good with sufficient rest. Pneumonia more commonly complicates the laryngeal type. Those children under two or three years do not have as good outlook as those older.

DIAGNOSIS.

The pharyngeal type of diphtheria is the most common. Laryngeal is the next most common type. Frequently valuable time is lost and giving of antitoxin is delayed because there is no visible evidence of diphtheria in the throat. In the laryngeal type throat cultures are often negative, but cultures taken directly with a tracheoscope are usually positive. Less frequent types are nasal, ear, and diphtheria of the mucous membrane of the vagina, and of wounds.

The clinical diagnosis as a rule is more reliable than the laboratory diagnosis. The latter should be considered confirmatory and should always be made when possible. Positive diagnosis can be made in some cases from examination of a direct smear, but examination of a young culture is necessary when the direct smear is negative. The typical diphtheria lesion somewhat resembles wet, raw leather and is made up of necrotic epithelium with coagulated exudate from the blood vessels and bacteria. The membrane cannot be detached without causing bleeding. A nose, eye, or ear infection with coincident urticaria is likely to be diphtheria.

In follicular tonsillitis the fever is usually higher, the throat more painful, and the constitutional symptoms appear earlier. The exudate on the tonsils is usually in spots at the opening of the crypts, and is easily removable.

In Vincent's angina there is usually a punched-out appearance of the lesion. Examination of a smear shows the typical bacilli and spirilla of Vincent's angina. Antitoxin has no effect on it.

In differentiating between diphtheritic laryngitis and catarrhal laryngitis note that diphtheritic laryngitis has a more gradual onset and is usually first noticed during the daytime, while catarrhal laryngitis usually comes on suddenly, in the middle of the night, with great severity, and is usually much better the following morning. A history of exposure to diphtheria or previous similar attacks helps in the differentiation. When there is any reasonable doubt as to the diagnosis, antitoxin should be given. A thin, irritating nasal discharge, often blood-stained, that causes excoriation and possible swelling of the upper lip should make one suspicious of diphtheria. The other forms of diphtheria are rare. It is characteristic that the pulse rate in diphtheria is rapid in comparison to the temperature which is characteristically not high. The typical diphtheria odor can at times be recognized in the first day or two.

PROPHYLAXIS.

The laity as well as the profession is coming to realize the importance of diphtheria prophylaxis. The very extensive use of toxin-antitoxin immunization in New York City has proved its worth beyond any doubt. It has cut the incidence of diphtheria to less than half. The same reduction in incidence is taking place in other cities and wherever active immunization is extensively employed. The age group for diphtheria is one to ten years. It is relatively infrequent after this age, and in the first year of life the incidence is less than one per cent. On the whole infants in the first six months possess some immunity. The administration of toxin-antitoxin to this age-group has been rather disappointing. Non-immune infants from six month to one year of age are immunized as readily as older children. It is a fact worthy of note that the percentage of immunes is very different for different localities, the percentage being appreciably lower in the cities than in the country. For instance, at one year the percentage for the cities is sixty-five and ninety for the country. For ten years of age and over the percentages are five per cent in the cities and sixty per cent in the country. These figures are from Park. Elsewhere than in the United States Ramon's antitoxin or diphtheria toxoid is used, and the results obtained are comparable to those obtained with toxin-antitoxin mixture used in the United States.

Susceptibility to diphtheria, as we all know, is determined by the use of the Schick test, which consists of the injection of a small amount of toxin into the skin. Those susceptible show a reaction about the site of the injection in twenty-four to forty-eight hours which lasts for three to five days.

Toxin-antitoxin mixture is best administered in three doses given about a week apart. In three months time this gives immunity in about ninety per cent of the cases. A second series of injections will

give a satisfactory response in about eight of the ten remaining per cent. Six months after the injections the percentage of immunes is greater than at three months. It is an interesting fact that those having some natural antitoxin in the blood respond to toxin-antitoxin more rapidly than those having no antitoxin. Toxin-antitoxin mixture does not give immediate immunity and therefore, in the presence of diphtheria, antitoxin and not toxin-antitoxin should be used. The presence of an excess of antitoxin in the blood requires larger doses of toxin-antitoxin to produce a satisfactory response, and if antitoxin has been administered, ten days to two weeks should elapse before giving toxin-antitoxin mixture.

The Schick test should be used to determine the immunity in older children, those having had toxin-antitoxin mixture, and those individuals likely to come in contact with diphtheria, before immunity should be assumed. It may be omitted to those under five years because the percentage of susceptibles is so high.

Park's modification of the Schick test is especially applicable in this group. This test consists of the injection just beneath the skin of one c.c. of the toxin-antitoxin mixture. Non-immunes will give a positive test as evidenced by an appreciable pink skin reaction about the site of the injection. The first dose in immunization has been given in any case, and in the absence of a reaction the immunity is established and no further injection need be given.

The duration of immunity is permanent in most cases, although it is reported that about three per cent of cases annually change from a negative Schick reaction to a positive reaction. Some people will give a positive Schick reaction and later give a negative reaction. The possibilities of poor technique, inactive material, and incorrect readings of reactions probably account for at least most of these changes. A natural immunity is permanent in nearly all cases.

If an individual has had diphtheria and gets a sufficient neutralizing dose of antitoxin early in the disease, before he has had time to produce his own antitoxin, he is not as likely to develop lasting immunity as the individual who did not receive antitoxin early in the disease and had to develop his own antitoxin.

The giving of toxin-antitoxin mixture raises the question of sensitization to horse serum. An increasing percentage of cases of hyper-sensitiveness to horse serum may be expected in the future from the extensive use of toxin-antitoxin mixture. I have had a few fairly severe reactions of this kind, but have not seen any really serious ones. To obviate this possible sensitization to horse serum, it has been my practice lately to use the toxin-antitoxin now on the market, made from goat serum.

TREATMENT.

Antitoxin may be administered intravenously, intraperitoneally, intramuscularly, and subcutaneously. The rate of absorption is greatest in the order named. In laryngeal, severe, and septic cases, and in those patients not receiving antitoxin in the first two days of the disease antitoxin should be given intravenously or intraperitoneally. Park estimates that one unit of antitoxin given intravenously is at least the equivalent of five units given subcutaneously or intramuscularly. The dose of antitoxin advised is three thousand to thirty thousand units or more. In any case, a sufficiently large dose should be given, and the dose need not be repeated. Of course the slower the rate of absorption and the severer the case, the larger the dose required. With a history of previous serum injections or possible sensitiveness to horse serum the patient should be tested with a minute dose subcutaneously before giving the full dose of antitoxin. Antiphalaxis is readily produced in the laboratory animal, but a serious reaction in the human is rare. Maximum concentration in the circulation at the earliest moment is necessary to give the patient

the greatest benefit. For this reason the intravenous route is the method of choice, using the jugular vein when necessary. Intraperitoneally is the next best. Prolonged rest is necessary to minimize the chances of paralysis, which usually occurs within ten days to two weeks.

In laryngeal diphtheria with stenosis of the trachea there are two alternatives. They are to do an intubation or a tracheotomy. Where possible intubation is the one of choice. It requires very careful nursing for the three to five days the tube is left in place, but it is not mutilating, and is efficient in nearly all cases that tracheotomy is efficient. The advantages of tracheotomy are that a larger percentage of physicians can perform it and the nursing care is simpler. Another alternative where the apparatus is available, time will permit, and the technique mastered, is to pass a rubber tube into the trachea and by suction remove the excess of mucous and loose membrane. Intubation or tracheotomy should be avoided where possible. However, one of these should be used on the early evidence that the patient is not getting enough air and is exhausting himself. In a fairly good series of cases I have been able to give proper relief in about ninety per cent of the cases by intubation. In most of the failures to give relief by intubation, tracheotomy likewise failed to give relief. In an occasional case the patient immediately coughs up the tube with mucous and membrane and does not require re-intubation.

SUMMARY.

Many healthy individuals are carriers of virulent diphtheria bacilli. Many carriers are carriers of non-virulent diphtheria bacilli. A positive throat culture is not conclusive evidence of diphtheria. A negative throat culture is not conclusive evidence of the absence of diphtheria. The infection of a mucous membrane with co-incident urticaria is likely to be diphtheria. The extensive use of toxin-antitoxin mixture in immunization has greatly reduced

the incidence of diphtheria. Increasing numbers of individuals sensitive to horse serum may be expected in the future. Park's modification of the Schick Test simplifies the testing and immunization for diphtheria. The method of choice for the administration of antitoxin is intravenously or intraperitoneally on account of its rapid absorption.

DISCUSSION.

Dr. L. I. Tyler (Baton Rouge): Mr. Chairman and members of the Association: First, I want to congratulate Dr. Lucas on his excellent paper. He has left out very little that any of the rest of us could add to. I do not mean to try to cover this entire subject, I merely mean to try to stress three points: First, the early diagnosis; second, the administration of the antitoxin; third, the after-care of the patient. No examination of a child is complete without first observing the respiration and a careful look at the throat. Most of us, I believe, are sufficiently familiar with the diphtheria membrane to recognize it when we see it. However, there is no object, if the condition of the patient is such and we are in doubt, to wait on the laboratory findings. Once a diagnosis is made, then it is very important that we give a sufficient amount of antitoxin. My rule is, if I am in doubt as to whether I should give ten or twenty thousand units, I always give twenty. I never like to see a patient require a second dose; too much time is lost, too much damage is done.

So, after a sufficient dosage of antitoxin is administered, as Dr. Lucas said, preferably intravenously, second intraperitoneal, the patient should be considered seriously ill and put to bed, on a light diet, with a daily examination of the heart and kidneys, for two reasons: The first thing, a daily examination enables us to detect any condition, any complication which may arise, in its infancy; second, it impresses the family or the parents, particularly, with the importance of keeping the child quiet. In that way, I believe we will reduce the damage done by so many of them when the little fellows are permitted to jump up in bed, chase over the room and so forth. I thank you.

Dr. Bloom (New Orleans): I have enjoyed very much the paper written by Dr. Lucas, and I have little to add to what he has said, except there are a few points that I would like to stress. We have had a great deal of difficulty in overcoming the so-called carrier. In a series recently made by two well-known pediatricians, they found, in a series of two hundred and seventy-two chil-

dren, approximately six per cent of that number were carriers; and of that six per cent, possibly only four percent were nasal carriers. I would like to ask Dr. Lucas what his routine is in the management of carriers. The next point I would like to discuss is the question of susceptibility. Dr. Lucas has said that he has found familial susceptibility. I have not found that true.

In a series of three hundred and fifty cases in my private practice, I have had less than one percent where there has been more than one case in a family. To summarize some of the more important symptoms and signs of nasal diphtheria, I have found that scabs of the ala nasal which were not amenable to simple treatment, offensive breath that could not be accounted for, and mouth breathers where we were fairly certain that the adenoids were not the mechanical factor; these were sufficient symptoms to justify the suspicion of diphtheria.

In the diagnosis of tonsillar diphtheria, we are mislead at times. Certain cases present typical signs of so-called follicular tonsillitis, but if this type does not clear up with an application of silver nitrate, associated with a hoarseness and a mild or slight tirrage this case will unquestionably prove to be diphtheria—laryngeal diphtheria.

We are confronted with the problem of giving toxin anti-toxin to a great number of our patients, and because a great many of them are prejudiced against antitoxins and toxin-antitoxins, I think if we can bring to their attention the fact that Park and Zingher of New York, have treated or vaccinated over one million children with toxin-antitoxin with apparently no deaths that surely this has gone beyond the experimental stage. Unfortunately, there have been three instances where deaths have been recorded; one in Dallas, Texas, another in Boston, Massachusetts, and a third in Vienna.

The Dallas instance was caused by the toxin-antitoxin not being neutralized. In Boston, the toxin-antitoxin was frozen, and in Vienna the toxin-antitoxin was toxic when delivered. If we consider the question of anaphylaxis and make a comparison of the globulin of the toxin-antitoxin, as compared to the antitoxin, we will find that with the toxin-antitoxin is one three thousandths of the c.c. as compared with one c.c. of the antitoxin.

Another question will frequently be asked by parents, when other children have been in contact with the case of diphtheria, "Would you give, at this time, the toxin-antitoxin, or the antitoxin, as a prophylactic?" It is not advised that toxin-antitoxin should be given where a child has come in contact with a case. I never give an

antitoxin to a child who has been in close proximity to a case unless cultures have been made and proven positive, for, in these cases they bear close watching and if the time arises when the diagnosis is certain, you have plenty of time to give the antitoxin.

Dr. Geo. S. Bel (New Orleans): Mr. Chairman and members of the Society: Dr. Lucas' paper is undoubtedly one of the most important and interesting that has been presented at this meeting. There can be no doubt but that in a number of cases a careful evaluation of the clinical symptoms, subjective and objective signs will lead the experienced physician to most probably make a correct diagnosis of diphtheria in the great majority of cases; however, I want to impress upon each and every one of you, the necessity of controlling by cultural methods, all cases of suspicious throat, nasal and laryngeal infections.

We must remember that there are atypical forms of diphtheria and we can not, no matter how experienced, always determine the exact causative factor by the location and character of the membrane. I have observed many cases, seemingly frank and innocent tonsillitis, which, by cultural methods, proved to be diphtheria; but, on the other hand, many a true membrane on the tonsils and pharyngeal wall, have proven not to be diphtheritic after a careful bacteriological study.

Alert and wise physicians, even though placing the proper reliance upon laboratory examination, will promptly administer antitoxin in all suspicious cases without awaiting the final report of the pathologist.

Just a word concerning the taking of cultures. Very frequently, especially in children, we have considerable difficulty in securing the proper specimen. Sometimes our applicators do not even come near the diseased spot and, to our surprise, the laboratory report is negative. It has been my practice to always be certain that the membrane has been carefully brushed, even made to slightly bleed, and invariably, I secure swabs from the nose in all suspicious cases. After making my cultures I send the infected swabs to the laboratory, and in numerous cases of diphtheria, the pathologist has been able to give me a positive morphological diagnosis by the study of stained smears made from the swabs, this tentative diagnosis being laterly verified by the cultural study.

Many of the serious complications of diphtheria that we have heard mentioned this afternoon, especially paralyses and cardiac involvement, are largely due to delay in diagnosis and insufficient use of antitoxin. Remember that the prognosis

in this disease depends practically entirely upon the prompt administration of antitoxin in sufficiently large doses.

Dr. W. H. Harris (New Orleans): As a laboratory worker, I was about to say pretty much the same thing as Dr. Bel has said. I wish to take certain exceptions to the matter of not relying upon the culture. I would say that in instances where a laryngeal infection is considered and a matter of delay may mean serious consequences to the patient, very well and good, do not stop to debate. On the other hand, in tonsillar or faucial diphtheria, if diphtheria infection is present the diphtheria bacillus will be found. That, of course, is contingent upon the procuring of the proper material. We know these patients are often screaming, writhing, little children, and if you are content to stick a swab in the mouth and not touch the proper pathologic site, we may obtain a negative report under the circumstances, where a positive should be obtained, but that is not the laboratory's fault. I have seen repeated examples of streptococci infection in which ear, nose and throat specialists of high standing have been satisfied that the clinical lesion was that of diphtheria. We have followed these cases up, where they have withheld the injection of serum. Recently tests have never shown the diphtheria bacillus present and the case has cleared up without serum therapy.

I do not think it is proper, in these ordinary tonsillar lesions which may be pseudodiphtheritic, to administer the serum promiscuously, inasmuch as there may be future occasions when we will feel more comfortable in giving serum injections where the disease is actually present.

I would like, further, to say that I do believe we should encourage more the matter of direct bacteriological examination of the exudate. We have had occasions in our laboratory work to follow up a great deal of direct smear examination, and wherever it has been practical to obtain a satisfactory portion of the exudate, the smear will, as a rule, give you satisfactory diphtheria organisms. The culture is not always necessary, except where we are very much in doubt.

I do not believe that we have any pathological manifestations of the throat, which, clinically, is absolutely pathognomic of diphtheria, and we have diphtheria lesions that are not clinically representative of this disease.

I think the same thing occurs in the instance of the chancre, where we know we may be at a loss from both sides. Although usually the clinical aspect conforms with the laboratory side, there are exceptions which should be heeded.

Dr. N. F. Thiberge (New Orleans): There is one point I would like to bring out, and that is, in the interpretation of the test; the doctor made allusion to it, but I think it deserves our consideration for a few minutes longer. Those considerations have been brought to my mind very forcibly in my ten years in the hay fever clinic. There are three things we have to consider in making skin tests. First of all, is the immediate reaction, that immediate reaction may be simply traumatic, and it is to be disregarded. The second reaction is of non-specific protein. There, the control and the Schick test will give you the same reaction and disappear at the same time, and the only reliable finding that you are to accept is where time has had a chance to separate and to stress the specific reaction in the Schick test, not appearing in the control. You have to wait for your reaction.

If you have an immediate reaction, disregard it. We always wait a long time before we interpret hay fever tests, because there are some patients who will react to any kind of protein, and protein is contained in the Schick reaction. This you can disregard it; it is only after that reaction fades out and the other one comes on, that you find the real test.

Dr. Rufus Jackson (Baton Rouge): Gentlemen, I would first address myself to the general profession, particularly the residents in the rural districts, where you have not accessible examinations by specialists and there I would warn you of a pitfall. Do not treat incrustation about the nose as a simple condition.

Fit yourself to examine the inside of a nose, and by the time you have seen three or four cases of diphtheria, you will see enough inside the nose to diagnose nasal diphtheria before you get your crust formation about the nose.

Another thing, do not trust the croup. This thing seems to run in special forms and special districts. Since my residence in Baton Rouge in the past eight years, it has been almost an invariable rule that the history is very specific that the child is coupous at night and, in the day, is clear, and each day, from two to four, the croup becomes worse. Those people were particularly justified in considering those cases—I mean the laymen and a great many doctors—the same way, as croupous, because they had croup in the family before, which acted that way and cleared up without manifesting the marked symptoms of laryngeal diphtheria.

Of course, we have to get at the bottom of this and get the scientific facts, which are of interest in a very few years, because soon the toxin-antitoxin and the use of diphtheria anti-toxin is

rendering so innocuous the virus or strain of diphtheria bacilli that we will not have so much of the virulent diphtheria. The thing I have in mind is, however, when shall we intubate or when shall we tracheotomize the patient, when shall you employ it? Very often, you see people who insist that their child shall not be tracheotomized and not be intubated, and you insist, and the child persists in living, in spite of you, and you are thereby discredited.

We have no scientific check, because these children die, not of air hunger, but of heart paralysis—I should not use that term, they die of heart fag, most all of them die of myocarditis, because they do not go to the point of getting an endocarditis.

So, I believe many of you men should start an investigation in conjunction with your internists, who can take the blood pressure and study the heart and determine the minimum blood pressure that a patient should be allowed to reach, before you say it is now safe to go any further without intubating or tracheotomizing, because you can save a lot of children. Intubation may not be as helpful as you hoped, and you may be driven to tracheotomize too late, and I would say, in this connection, for the general practitioner, if you want to get good results from the antitoxin, don't inject it in the same hole, inject it in four points, you may hit a blood vessel and get a big clot and little absorption in your second point, and if you get everyone without a blood clot, you have four avenues. I learned that in some cases where it was not feasible to give an intravenous, and I turned it in four different points, and whatever dose you are in the habit of giving, if you give ten thousand, by all means give twenty; and if you are in the habit of giving twenty and you are putting it in for suspected laryngeal case, put in forty thousand.

Dr. J. H. Musser (New Orleans): The last two years, I have had the opportunity of seeing some six hundred cases of diphtheria, approximately. There are one or two brief observations I would like to make.

In the first place, the frequency of the different types of diphtheria: We find nasal diphtheria quite frequently in the ward. Thanks to the very assiduous study of the drums by Dr. Jones, we found many cases of aural diphtheria. At the present time, I believe there are eight cases in the ward at the Charity Hospital.

I want to accentuate something Dr. Jackson said and take issue with Dr. Harris about the advisability of making a bacteriological culture or making diagnosis from the bacteriologic examination, and that is with the laryngeal type of diph-

theria. In this large series in Charity, we have had only one death from the pharyngeal type. On the contrary, we have a great many deaths from the laryngeal type. I would advise always, if you are called to a patient's house at night to see a child with croup, not to wait for the bacteriologic diagnosis, if that child has not had previous attacks of croup, but get the antitoxin into the child at once, because a great majority of such cases are truly laryngeal diphtheria, and that is the type of case we see die in the hospital, coming in in the late stages, and dying in perfectly frightful numbers.

I am a little dubious about the advice of giving antitoxin intravenously, I think it is an exceptional case that requires it. I would hesitate strongly and I would dislike very much to see the impression go out that the average internist and pediatrician advises that particular route of the administration of antitoxin, because there is no question, it is a dangerous procedure and one which sometimes, unfortunately, leads to extremely tragic results.

Dr. Guthrie (New Orleans): Mr. Chairman, there is one little point that I think we should make clear, before this assembly adjourns, and that is, if there is any time after infection of diphtheria remaining untreated, that there is a point at which a commission can determine that myocarditis has occurred. The notion of diphtheria is that myocarditis begins as soon as the toxins circulate in the blood; myocarditis is there whether we can demonstrate it or not.

It was said, this afternoon, we should wait regarding intubation and study to find a point where myocarditis had occurred, and then do something. That is not good teaching. We want to guard that myocarditis, because it is as sensitive to the treatment of toxin, and that is our chief guard. If the child gets well, the larynx is perfectly satisfactory; he may be a so-called convalescent, but from the internist's standpoint, that child may be enormously damaged, and the laryngologist, or whoever treated the child in the acute attack, may have made a gross failure, even though the child was saved. A child saved with a damaged myocardium, through delay in introducing the proper amount of antitoxin, the job is just as poor a one as if the child had died; he is as much to be blamed, he has done an inartistic piece of work. We have to guard that myocardium and keep the integrity of that myocardium in mind from the minute we see these cases.

Dr. L. R. DeBuys (New Orleans): There is no excuse for anybody to have diphtheria now with the present method we have for the immunization of individuals. Everybody should be immunized if not already immune. Those of us who allow diph-

theria to develop in our clientele have nobody to blame but ourselves. I know of no immunizing agent that causes so little reaction and inconvenience to the individual than the toxin-antitoxin employed in the immunization against diphtheria.

With regard to finding the Kleb Loeffler bacilli in the throat of an individual who is not ill and who has no clinical evidences of the disease in the upper respiratory tract, or systemic reaction, one or two explanations are to be considered, either the individual is taking care of the infection and is immunizing himself, or the individual has had the active disease and has not recovered sufficiently to free himself from the bacilli and is looked upon as a carrier. In connection with the former instance the studies of the immunity to diphtheria will hear that out. It has been shown that the higher the age scale the smaller the percentage of individuals who are susceptible to the disease. Those individuals who have never had the active disease and who give a negative Schick test have at some time or other overcome the diphtheria bacilli and immunized themselves. On the other hand, if the individual who has had the disease and who still has diphtheria bacilli present in his throat will give a negative Schick test he should be looked upon not as a sufferer of the disease but as a carrier and should be so treated.

Dr. E. B. Godfrey (Minden): As a public health worker, I cannot resist the temptation to give credit to Dr. Lucas for his excellent paper, and to express the appreciation of the full-time health officer of this State for the information derived. It has been my privilege, as well as that of many other health officers, to have given seven or eight thousand immunizations of diphtheria, during the last few months.

The problem that comes to the public health worker is not the type of diphtheria, it is the method whereby we can induce the children and their parents and others to accept the antitoxin. The human element side comes into play.

I live in Webster Parish. We, unfortunately, have in our parish a great many members of that sect known as the "Holy Rollers." A few weeks ago, two children died in the northern part of the parish, due to the fact that the State Board had not any station where antitoxin could be procured. One physician made frantic attempts to obtain antitoxin in order to save the children. Now, we have a station in Minden. I think we have another in a nearby town, so none of the physicians need suffer from lack of proper supplies.

In the above mentioned section, all the people belong to this sect known as the "Holy Rollers," and they concluded, after this death, that it would be advisable to accept anything that the health

worker might promote. I succeeded in not only immunizing one hundred and seventy-seven Holy Rollers, but I also included the preacher and his family.

Dr. R. T. Lucas (Shreveport): I wish to thank all those who discussed my paper, constructively and destructively.

Dr. Bloom asked the question as to just what to do with carriers, or what I do with carriers: I cannot give the correct answer, and I do not think the correct answer has been worked out. These cases should be watched very carefully and kept in isolation, if possible, but when you consider the number of individuals who are carriers of virulent diphtheria, at least of a diphtheria bacillus, (the virulous test is rather complicated for routine use) why, it becomes a very hard problem to solve. As I said in the paper, when possible, these cases should have a tonsillectomy and, in most of these cases, the diphtheria bacilli disappear.

As to susceptibility, the patient I mentioned was the case of one of a family of negroes at Willard Parker Hospital, when I was working there. Three individuals came to the hospital, one of the family had died before they came to the hospital. One had a fairly severe attack, another had some form of paralysis, and the particular patient that I just mentioned developed almost total paralysis. We seemed to find there rather a family susceptibility. That may have been a coincidence.

I was a little misunderstood, possibly my fault, about putting the emphasis on the clinical diagnosis rather than the laboratory diagnosis. As a matter of fact, the way the cultures are taken, the way the majority of you will take them, you are going to get a certain percentage of negative cultures in positive diphtheria. In those cases if there is any question about it, those patients should be given antitoxin. That is not debatable at all. If a culture is taken, probably you may have to dig under the membrane and cause bleeding before you get a positive culture. Nine times out of ten, that is not done. You may get the culture on the surface of the membrane and it may be positive. If you do not get it, it does not mean that you have not got diphtheria. You are more apt to get a negative culture in true diphtheria than you are to get a positive culture when you haven't got diphtheria. There may not be such exceptions, but I maintain that there are certain cases in which it is extremely hard if not impossible, even for a trained man to find the diphtheria bacilli successfully.

The further along I go, the sooner I feel inclined to intubate a patient with laryngeal diphtheria having respiratory difficulty. These individuals have two or three signs that are very im-

portant. As is usually the case in a child of one, two or three years of life, if you are getting all the respiratory muscles brought into play, if the patient is having retraction of the chest wall, if the patient is showing a certain amount of cyanosis, that patient should be given relief, because if you do not give relief, the relief later on is not going to give the results that it should. In other words, the damage to the heart, as Dr. Guthrie said, has gone on, and you may save the patient for the time being, but you cause an enormous burden on the heart.

It is the custom at Willard Parker, to routinely give the diphtheria antitoxin intravenously, and out of quite a large percentage of cases, I do not remember ever seeing a serious reaction. Of course, they do occur, but I do not believe your reaction with a clear serum that has no lipoids in it, or a minimum amount of lipoids will give you any higher percentage of reactions than it will where it is given subcutaneously or intravenously.

The Research Laboratories were putting out a refined product which did not give much reaction. A number of houses are now putting out a serum that is very clear, and that type does not give as much reaction as the serum that you hold up and find to be cloudy. I think that covers most of my subject.

PTOSIS SUPPORT FOR THE VERY THIN INDIVIDUAL.*

A. K. DUNCAN, M. D.†

NEW ORLEANS.

The apparatus about to be described for those suffering from visceroptosis was intended and primarily designed for those presenting a marked scaphoid abdomen when lying down. A routine examination in the erect position will disclose more cases of ptosis in these individuals than is generally suspected. Others with more fat within the abdomen and in the abdominal wall are often entirely relieved by the various forms of belts, with and without pads, of which there are a sufficient variety to meet practically any individual requirement.

*Read before the Orleans Parish Medical Society, April 23, 1928.

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It is perfectly true that rest in bed with the foot of the bed elevated and forced feeding will be of great benefit and these means should be used to their greatest extent in correcting ptosis, but individuals will be found who cannot afford any loss of time from their occupation, and this fact led to the design of the first of these supports in March, 1923.

The patient is to be placed in a moderate Trendelenburg position. A plaster bandage is then used to take a cast of the lower abdomen from just above the umbilicus to just below the pubic bone and laterally to well beyond the anterior superior spines and iliac crests. The bandage is passed back and forth until sufficient thickness is obtained, molding it from time to time as in the making of a molded splint. When sufficiently thick and before the cast has set, it is imperative that more vigorous molding be done over the crests and anterior superior spines to exaggerate to some extent their imprints on the cast. The cast is kept well in contact with the abdomen and molding continued as described until fully set and then removed.

We now have a negative imprint or cast of the lower abdomen and iliac crests. When this is dry, it is turned upside down and the ends boxed in forming a mold which is poured full of plaster and allowed to set. This results in a positive cast of exact reproduction of the anterior lower portion of the trunk of this particular individual when laying down. Using this as a working model, a sheet of eighteen (18) gauge aluminum is laid over it and with a hammer worked into shape until it exactly conforms to the plaster cast. This gives us now an aluminum cast exactly fitted to the individual except that the molding over the iliac crests and spines has been exaggerated some, as advised in making the negative cast. When this aluminum cast is fitted on the patient it may touch but should not bear heavily on the bony prominences. Now to trim up the edges. With the aluminum in place on the patient, it is

marked out to fit just above the pubic bone and inside the groins up to the anterior superior spines and then outward to allow two to three inches beyond the crests and above, along the line across the abdomen formed when the patient bend forward. *Note:* Allowance must be made for rolling the edges when finishing, and it is well to have the patient raise each thigh to a horizontal position while standing on the other foot to be sure sufficient clearance is made for the extensors at their attachments to the spines. Any slight irregularity in the fit is noted and corrected by bending or use of the hammer. The edges are then rolled and the aluminum polished. It may also be perforated like a salt shaker or not as is desired. The usual belt attachments of non-elastic material are now riveted to the posterior edges of the aluminum, a bridle formation being satisfactory, the end of one passing between the two straps from the opposite side posteriorly and both end brought around in front to buckle. When this is fitted to the patient, a point will be formed in the midline in front at which the straps buckled over the support distribute the pressure evenly and comfortably without tending to tip the support above or below and here a flat hook is to be riveted and the belt slipped under it to keep it always in place. Hose supports or perineal straps may be attached depending on the build of the patient. This support is to be put on before arising, the patient sleeping with the foot of the bed elevated, or after getting in the knee chest position and then turning on the back. It may be worn next the skin or over a thin undershirt and if properly fitted, it is not only not uncomfortable but the patient will wear it because they are comfortable with it on. It is clean, does not stretch and does not wear out. It is easily put on and it always fits. (Some changes will be required as the patient gains weight, but they are quickly and easily made.) Best of all, when the patient stands it really supports the viscera, including the kidneys, ranking next

to pregnancy in relieving ptosis in women and with the advantage that in this case it is equally available for men. As it corrects the ptosis it relieves the constipation and in several cases albumenuria due to kidney ptosis and also the multitude of abdominal pains for which people are often unnecessarily and unsuccessfully operated on. With proper support they can be put up and about and they can eat again without distress, thereby gaining much needed weight and strength and eventually are cured and able to discard the artificial support.

I have not attempted to use this as a cure-all, reserving it for the type of case mentioned at the beginning of this article and so far it has proven most satisfactory in my hands and in the hands of others here who have used it in similar cases.

Thanks are due to Mr. Frank DeMandre of the Surgical Supply Company for aid in working out various mechanical steps in the execution of this idea and it will be of interest to some to know that the cost of material and labor in making and fitting of this support will amount to about \$17.00, as it is very simple after a little practice.

A thorough search of the literature has not been made but a superficial examination has not revealed any article in which this idea for correction of ptosis has been mentioned.

DISCUSSION.

Dr. A. E. Fossier (New Orleans): Dr. Duncan has broached a topic of exceedingly great interest and importance. Visceroptosis is a condition of frequent occurrence which the diagnostician must recognize in order to help or cure. I do not believe in the use of trusses, as such, in the treatment of visceroptosis because frequently they exert pressure where it is least required and may cause injury to the patient. It often occasions a certain amount of adhesions, local irritation and hardness of the skin.

Such drastic measures are not necessary for the correction of visceroptosis. The bandage will do the work without these inconveniences. A supporter is necessary in the treatment of Glenard's disease, in fact these patients feel the necessity

for its use. The patients request it. I have often been asked by them, "Doctor, give me something to hold up my abdomen and I am sure it will make me feel better." Furthermore, every drugstore and surgical instrument shop has some type of abdominal support for sale. The medical journals, as well as the lay journals, carry all kinds of advertisements advocating its use. Unfortunately, many of these do not fulfill the individual requirements of the patient, and are therefore of no value. For one hundred years they have been in use. Glenard, after whom the disease was named, revived the question at the end of the eighties and devised a bandage or supporter for the correction of these conditions. Corsets, trusses and various other appliances give more or less good results. The object of the supporter is to not only raise, but to maintain in a lifted position the abdominal viscera. The belt, bandage or supporter can be used to much advantage in cases of visceroptosis. We must not depend on the bandage alone to correct visceroptosis: if we do not have sufficient strength of abdominal muscle a supporter is indicated until such time that diet and exercise will augment the tone of these muscles.

The true test of a supporter is: It must lift up the abdomen by exerting pressure upward and backward, and only a few of the commercial supporters have this qualification. As a rule they exert in all directions except inwardly and upwardly. The supporter designed by Dr. Lerch of this city has in my opinion, given the best results in the treatment of splanchnoptosis. Visceroptosis is not confined to the thin individual, we find it also in the obese, and a fat abdomen can be supported as well as an emaciated abdomen. After a while, when the muscles have been strengthened, the visceroptosis gradually disappears, the supporter can be dispensed with.

Dr. P. A. McIlhenny (New Orleans): I agree with Dr. Duncan in practically all that he says. I think the majority of visceroptotic individuals start in early childhood. Sometime ago Goldwaithe called our attention to this possibility. Many years ago G. E. Davis of Philadelphia gave us what is now known as Davis' line. In the erect position (illustrating where Davis' line would pass in the normal person in erect position, and where in the visceroptotic individual) the mastoid is here, the shoulder here, the great trochanter here, the knee here and the calcaneal-cuboid here; while in the individual with a hollow, rounded back and rounded abdomen, you find the mastoid here, the shoulder here, the hip here, the knee here and the calcaneal-cuboid here. This position tends not only to abdominal ptosis, but to thoracic ptosis as well.

The responsibility rests on the general practitioner in examining the children early in life to

see that through a faulty posture they are not allowed to develop into visceroptotics. See that they assume and maintain the proper position. It has been remarkable to me, in examining school children, to observe the faulty attitude assumed by so many of these little children and unless this mal-position is corrected you may rest assured that as they grow and take up their occupations they are going to suffer from visceroptosis. But if you correct this faulty attitude in early childhood the individual will grow to a point where they will not need a belt or truss.

Dr. I. M. Gage (New Orleans): The belt described by Dr. Duncan is probably the best mechanical support for visceroptosis on the market today. Of course in treating visceroptosis it is a well known physiological fact, that to restore the viscera to their normal position, the abdominal muscles must be kept in good physiological tone as well as there must be an increased amount of fatty tissue stored in the mesentery. To accomplish this patients must take exercise and take rest periods and forced feedings.

On account of economic conditions this is impossible in the majority of cases therefore a mechanical support of some type must be used in conjunction with exercise and so forth until the patient is in such a condition that there is a normal status present. All of this can be most efficiently carried out by the use of the prescribed belt as well as the other treatment outlined by Dr. Duncan.

In the meantime the patient is completely relieved of her symptoms.

I have only had the pleasure of using this belt in two cases, but have had the pleasure of seeing both patients completely relieved of hematuria, constant backache and vomiting which was the result of visceroptosis.

I heartily endorse the Duncan belts with the muscular exercises advised by him.

Dr. A. K. Duncan (closing): I purposely did not bring in any discussion on visceroptosis in my paper, because I felt sure it would be taken up in the discussions that followed and that there would be very little said of the belt proper.

I think Dr. Fossier missed the point. I did not claim that other belts were no good, but that with certain thin types of individuals they do not fill the bill. He missed, too, I think, the advantages of the belt that I described—that it is a cast taken of the patient when lying down, the normal position for that abdomen; it does not press in vital places or hurt the skin, merely holds the abdomen in normal position so that when the patient stands up she stays put. Belts and pads force the abdomen into a shape it should not be. With this belt there is no bulging in any place, no elasticity to make pressure and

whether the patient is lying down or standing up the abdomen is in the same position. These are the advantages that I claim for the belt.

It does not answer for a fat individual; does not answer for the great majority and, as I said in the paper, it is not a "cure all." There are only a certain amount that require a belt of this pattern, usually a very thin abdomen of the scaphoid type, which does not touch the support when lying down and which has to bulge at least two inches before it does touch when in the upright position, and when the patient does stand, receives the proper support.

Dr. Gage's experience with these supports has been the same as mine. I tried various belts on a very poor individual who could not afford to stop working, but none of them gave any relief. She could not eat and vomited all the time. Since she has been wearing this type of belt her improvement is marked and she continues to gain weight; her present weight is 135 pounds.

I did not go into all the belt difficulties, merely gave a resume of the conclusions we have reached now. With the moulding as a model for the support it absolutely fits; it is very light and does not give the patient corns on the abdomen or anything of that kind.

Dr. McIlhenny's point about posture is well taken. We do not put this belt on and discard everything else, but see to it that the patient is properly fed and takes abdominal exercises to strengthen these muscles. I think I brought out that the object was to put these people in condition where they did not require a truss or support. Not a cure all, merely an abdominal support, but that proportion who need it are certainly benefitted by it as by no other belt used for these indications.

THE PATIENT PAYS THE PIPER.—More moderate-priced hospital beds will help to relieve the present high nursing charges, and better organization of nursing service with available part-time nurses coming from a community center will mitigate the excessive cost of private nursing in the home. For smaller communities the community hospital and health center with community nursing service will do much toward providing more adequate relief at reduced expense. The public wants and deserves good medical care at a lower cost. The physician wants and deserves an assured income and a comfortable living as a recompense for his services. Earnest efforts are being made for the attainment of this millennium, but let us not forget that our annual bill for patent medicines still runs into the millions, and that we are still supporting a host of cultists, quacks, and irregular practitioners.—Garland, Joseph: *The Independent*, Sept. 15, 1928, p. 255.

THE USE OF LIPIODOL AS AN AID TO DIAGNOSIS OF NASAL SINUS CONDITIONS.*

A PRELIMINARY REPORT.

A. I. WEIL, M. D.,

AND

W. F. HENDERSON, M. D.†

NEW ORLEANS.

This is a preliminary report to put on record a line of investigation which we have been undertaking during the past six months. Although it is too early to draw any definite conclusions we have nevertheless gone far enough with the work to feel that it will prove to have a very definite value from an anatomical, a pathological and a diagnostic standpoint.

The process of injecting the sinuses of dried skulls with an opaque material such as bismuth paste, molten metal and the like and making radiograms of the skulls so injected in determining anatomical data, landmarks and anomalies is old and has been of much value in mapping out radiologically the anatomical relations of the various sinuses with the nose and the skull. It is this method which was used by Granger in determining his sphenoid outlines and landmarks.

It occurred to us that in lipiodol we have an admirable medium with which we could inject the sinuses of the living and with roentgen-ray obtain valuable information as to their anatomy, pathology and diagnosis. The sinuses which lend themselves most readily to this method of investigation are the antrum and the sphenoid, and our work has been practically limited to those sinuses. We have had no frontals up to now which seemed to require this procedure but doubtless some will occur and there is no reason why it should not be applicable to any frontal into which a probe can be passed.

*Read before the Orleans Parish Medical Society, June 25th, 1928.

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It must be understood that we do not profess to be the first to use lipiodol in the sinuses. That procedure has been used by others as well as by ourselves for a long time in occasional cases. What we are advocating is its systematic and routine use in sinus diagnosis just as we have heretofore used the simple roentgen-ray.

The lipiodol is introduced into the antrum through a Douglas canula just as one would use it in making a trial puncture of the antrum. The method is extremely simple and presents no difficulty whatever.

The sphenoid, on the other hand, is a little more difficult to enter, and indeed it is not always possible without preliminary surgical procedure to introduce a canula into the sphenoid and obtain a satisfactory filling with lipiodol. Sometimes we think we are in the sphenoid for we feel the canula pass into a large cavity in the region of the sphenoid through a small opening, which was thought to be the natural sphenoid opening, and it is felt quite surely that the canula was in that cavity, but the injection of the lipiodol shows very definitely that the canula was in a large posterior ethmoid cell, or in some cases pictures of the canula in place show that it was in no cavity at all. It is easily conceivable that in operating such a case we might think we have curetted out a sphenoid sinus when as a matter of fact we have not entered the sphenoid at all but have curetted out a large posterior ethmoid cell in that region. We may in consequence be disappointed in not getting the beneficial results we anticipated. This may be the case particularly when the sphenoid alone is operated and not the posterior ethmoid cells also, for after a complete middle turbinectomy and posterior ethmoidectomy it is not so easy to be deceived as to entrance into the sphenoid. However, these experiences revealed a distinct possible source of error. It is certain that in some without this preliminary procedure we may be mistaken when we think we have curetted the sphenoid whereas we

have been only in the posterior ethmoid cells. We are showing several slides in which this possibility is apparent. I think in view of these facts we are justified in saying that where the operative findings are at variance with the roentgen-ray findings they should be checked up by this method in order to be sure that the sphenoid was really operated.

Other anatomical peculiarities and anomalies have been disclosed by this method which might lead to error in diagnosis or in surgical procedure. For instance, we have seen several cases in which there is a very marked difference in the size of the sphenoids on the two sides and in which the sphenoid on one side extends well beyond the median line on the other side. We are showing a picture of one such case, and it is apparent from this view how, in operating a sphenoid on the left side, for instance, we might enter the right sphenoid or vice-versa. Another anomaly we are showing is a case where both sphenoids were entirely filled with lipiodol from injecting one side. This is explained by the fact that there is a dehiscence in or absence of septum between the two sphenoids, thus making them into one large cavity. An analogous condition is sometimes found in the frontal sinus. In such cases an empyema of the sphenoid on one side might easily cause ocular or other symptoms on the opposite side.

A further condition disclosed are those large enclosed posterior ethmoid cells as large as a sphenoid sinus and situated as far back in the nose. We are showing several such. This condition is of peculiar interest as showing how easily we may be deceived if we attempt, as has been recommended by some, to decide that we are in the sphenoid by measuring with a graduated probe, either inside or outside the nose, the depth to which the probe has penetrated. We are showing one case in particular where the large posterior ethmoid cell extends posteriorly quite to the depth of the sella turcica, and if we judged from the depth alone we should

feel quite certain that we were in the sphenoid. We are forced to the conclusion from these observations that such a method of orientation is faulty.

Surgical accidents in sphenoid operations have been reported from time to time in which the instrument was inadvertently introduced into the meninges and cranial cavity, with or without a subsequent meningitis or brain infection. We feel that preliminary method of investigation may tend to lessen the likelihood of such an accident. At any rate, it is worth the attempt.

PATHOLOGY AND DIAGNOSIS.

In some cases of antrum affection we have the experience that though the Douglas canula is in the antrum we cannot force any fluid through. One such case is being presented. With the Douglas canula in place lipiodol was injected and the subsequent radiograph showed that though the canula entered the antrum the only lipiodol visible were a few drops trickling back along the needle tract, into the nose. A diagnosis was made of a tumor mass completely filling the antrum which diagnosis was subsequently confirmed by operation. After removal of the tumor the antrum could be well filled with lipiodol. In this connection it might be mentioned that in controlling our results after antrum operation we experienced some difficulty in retaining the lipiodol in the antrum long enough to make a picture. As we all know, after the radical antrum operation a very large opening into the nose is left. The lipiodol ran out into the nose through this large opening as fast as it was injected and radiograms showed no lipiodol remaining into the antrum. This difficulty was obviated in the above case by placing the head in a lateral position, operated side down on the plate and making the picture at once with the head in this position and the needle in place before the lipiodol could escape. This method, however, for obvious reasons is not desirable, and in later cases at the suggestion of Dr. Henderson we succeeded in retaining the lipiodol in the

antrum in spite of the large nasal opening by packing the inferior meatus around the canula with wet gauze. This completely filled the large nasal opening and the lipiodol was retained in place by the gauze so that the radiogram could be made in the normal position. This method has proven very satisfactory.

Other cases of antrum infection showed greatly thickened membrane without the presence of polyps, while others showed distinct evidence of polyp formation. Without the lipiodol injections it is practically impossible to differentiate between these two conditions. Also injections are very illuminating in those cases of antrum involvement in which, though there is a distinct darkness of the antrum both with the roentgen-ray and transillumination the fluid from the trial puncture returns perfectly clear. The lipiodol enables us to differentiate between merely thickened membrane, polyp and tumors of the antrum as a cause of the darkness.

In the sphenoid the simple roentgen-ray may show a cloudiness of that cavity or a thickening of the bony wall suggesting hyperplastic sphenoiditis but it does not permit of a differential diagnosis between thickened mucous membrane, hyperplasia, polyp or simple pus in the sphenoid. It may give us a suggestion, but the lipiodol as we show allows us quite definitely to differentiate these conditions and guide us in deciding on proper treatment. So far our lipiodol findings have agreed quite well with the tentative diagnosis of the simple roentgenogram. We have not up to the present time had sufficient operative cases in the sphenoid to say how well they will check up with the lipiodol preoperative findings but will doubtless be able to report on that at a later date. We have as yet had no tumors of the sphenoid and cannot with certainty speak on that point. We are of the opinion, however, that the lipiodol would enable us to diagnose such a condition.

We have not used the Proetz displacement method of filling the posterior sinuses with lipiodol for that method fills most of the sinuses indiscriminately and does not give us the very information we are often seeking as to entering the sphenoid and its distinction from the posterior ethmoid cells.

We have used the Granger position and the Granger landmarks in most of our sphenoid work and have on the whole found them very reliable and satisfactory.

It must be emphasized in closing that this is only a preliminary report. A great deal further work will be necessary and many more observations made before we can conclude definitely as to the absolute value of the method and the various conditions in which it is applicable. One conclusion, I believe we are already justified in making. Though the various anatomical peculiarities and variations which we have described are not new but have been known for a long time to exist in occasional cases, we have heretofore had no method of determining in just which patients they might be present. The use of lipiodol enables us to determine this and so guide us beforehand in diagnosis and treatment.

DISCUSSION.

Dr. H. L. Kearney: Dr. Henderson spoke of using other substances than lipiodol in the injection of the sinuses for outline. Some three or four years ago, in a case of chronic frontal sinusitis, I used a 20 per cent solution of sodium iodide. In the one case in which I used it I found the substance impractical because it was not sufficiently radio-opaque to outline clearly the paranasal sinuses. Bismuth subcarbonate, brominized oils and many other preparations have been brought out from time to time, all of less density than lipiodol. Lipiodol is the ideal substance to use for determination of pathology by roentgen-ray study. A substance must be sufficiently radio-opaque to produce clear outlines of the sinuses in the bones of the skull.

From a practical standpoint Drs. Henderson and Weil have covered their subject pretty thoroughly. Their instructions in regard to intranasal measurements and explanations how to discriminate in diagnosing pathology of the mucous lining of the sinuses, the hyperplasias from poly-

poid conditions, etc., is very interesting. This method of outlining the sinuses and other anatomical structures is going to be of great service and to the rhinologist especially should prove of inestimable value.

Dr. L. J. Menville: In the study of obscure conditions the roentgen-rays have been used over a long period of time and particularly as an aid in sinus infection it has proved of considerable value. Among the technic devised by eminent radiologists, with reference to the study of sinus conditions, we might mention the work of Dr. Granger as one of the outstanding features.

Dr. Forestier of France was the first physician to use lipiodol as a diagnostic agent and used particularly in diagnosing bronchiectasis, later employed by others in diagnosing sinus pathology. Because of its high absorbability rate lipiodol creates a shadow distinguishable from any overlapping shadows of lesser density.

I believe that this method is going to fill a long-felt want, enlighten us in regard to obscure conditions and be of great assistance to us in our research work. It gives us a roentgenogram readily interpreted by roentgenologist and physician. Potentially it seems to me to have great promising value as a practical diagnostic measure, and wish to congratulate the authors and believe them too modest in their claims. I would like to follow up this work of Drs. Henderson and Weil, which I am sure will come to a most successful issue.

Dr. M. Earle Brown: Within the past few years it has been my privilege to study the various methods used in assisting radiologists in determining evidence of diseases within the paranasal sinuses. The pictures presented tonight are interesting, well taken, artistic and represents diligent study, yet the method is not new and must necessarily be instituted with more or less danger to the patient. At least the method requires the performance of a surgical operation requiring skillful technic, which even then is sometimes wrought with danger.

Van Osdol in reviewing the literature of opaque solutions injected into the sinuses for diagnostic purposes, commences as far back as 1902 with the old aqueous mixture of lead sulphate as used by Moritz Weil, and the injections of bismuth by Beck and Ramdohr in 1919, and the work of Brunetti and Filippini in 1924. Van Osdol in 1925 with neosilvol verified the existence of antral polyp and continued with his injections of neosilvol up to March, 1925, when Reverchon and Worms reported their work with iodized oil injected into the sinuses, then he commenced using lipiodol.

Proetz of St. Louis has done considerable work with lipiodol injections and exhibited a most creditable display at Milwaukee in 1926. He depends upon the position of the head to fill the sinuses for diagnostic purposes.

As very little is found in the literature upon this subject, one wonders why such a procedure should be necessary to establish a link in the diagnostic chain of sinus pathology. As the Granger position shows definite changes in the sphenoid, and an interpretation by him in over four hundred cases demonstrates his ability to differentiate opacities, due to hyperplastic conditions and those due to pus and polyp.

Dr. Homer Dupuy: At Charity Hospital, in co-operation with Dr. Granger and his staff, we carried out a series of experiments in the application of iodized oils. Thus far we are not very enthusiastic. Dr. Weil has stressed the possible advantage of tracing the paranasal sinuses with lipiodol. This is much to be desired, and yet I cannot say that we have succeeded in bringing out the exact position and contour, especially of the posterior ethmoid cells.

Without crediting me with priority in the measurement from the anterior nasal spine to the anterior wall of the sphenoid sinus, by way of a perfect lateral roentgenogram of the skull, Dr. Weil referred unfavorably to the method. Therefore, I am on the defense, without getting away from the matter of discussion before us. To enter the sphenoid through its ostium, or anatomical opening, is not always easy, or even feasible. If we are compelled to resort to puncture method for introducing the oil, therein lies the danger. The sphenoid is too much of a danger zone to forcibly enter it without highly approximate measurements to the anterior wall. (Roentgen-ray picture.) This is from Charity Hospital. Lipiodol, introduced into sphenoid sinus without previous Roentgen-ray lateral measurements, is shown as having entered the cranial cavity. Many globules are seen at the base of the skull, under the dura. Without previously known distances the needle entered the roof of the sphenoid, which is formed by the sella turcica. Strict attention to my measurements might have avoided this unexpected result. This is ample proof that there is an element of danger in the use of lipiodol, especially when applied to the sphenoid sinus.

Now, it seems to me that with the Granger method of diagnosing sphenoiditis, we are apparently equipped with a rather dependable method. Then why resort to other measures which are unquestionably fraught with decided danger. (Picture by Dr. Dupuy.)

Dr. Amedee Granger: The presentation of Drs. Weil and Henderson is very interesting and

I can see a distinct use for the method in demonstrating the existence of pathology in the sphenoids.

I can even see where it might assist in making a differential diagnosis, but I must say frankly that personally I have not found it necessary to use lipiodol to do so, and that I have been able in the last five years to differentiate pus from hyperplasia, and these two from a polypoid condition, in the radiographs made in my position without any trouble.

I have seen and diagnosed six cases of tumors of the sphenoid; by a careful study of radiographs made in my positions, including a 7 foot lateral view without the injection of lipiodol.

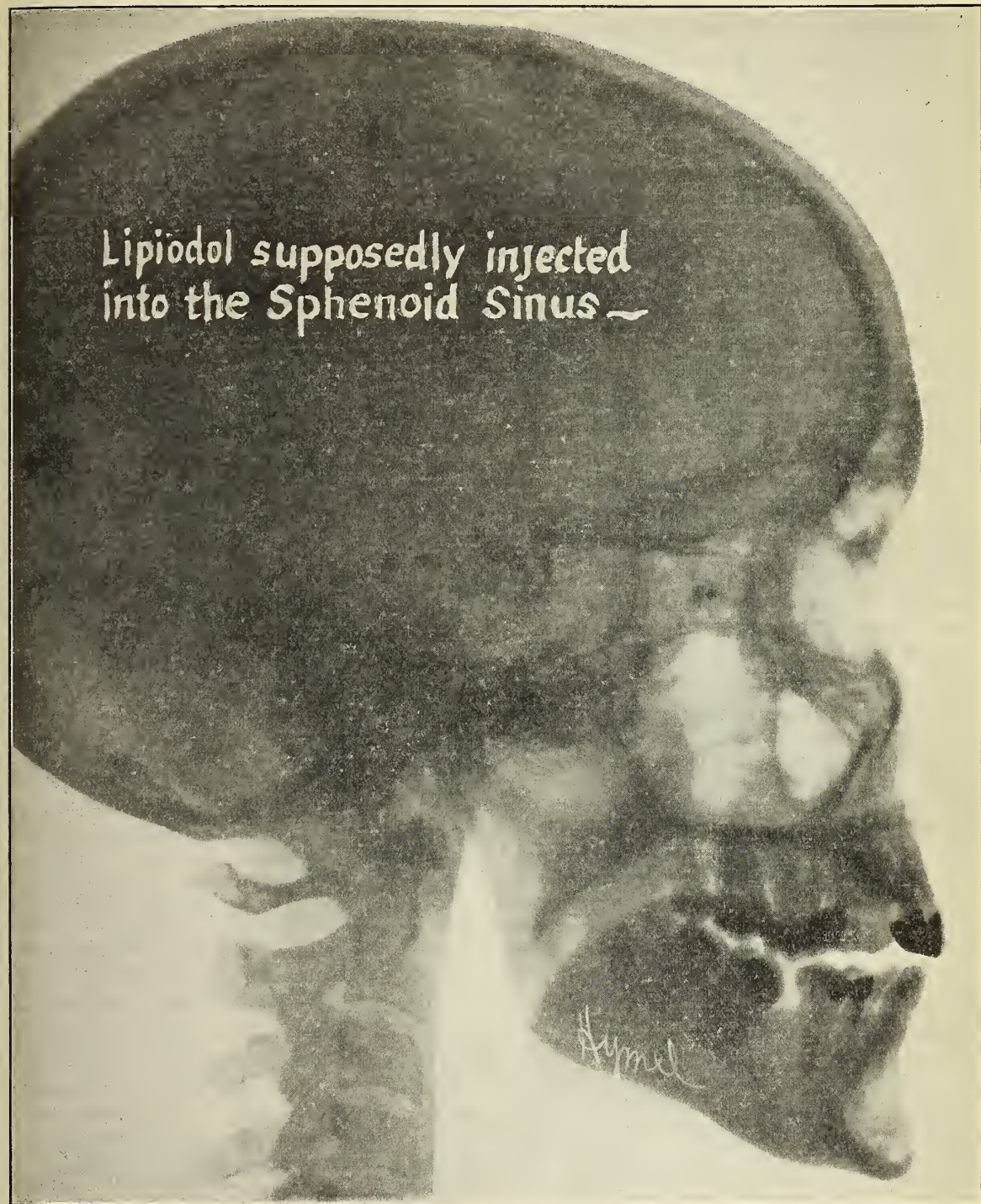
We made use of the lipiodol injection in a number of cases in which the existing pathology had already been diagnosed by my method and merely obtained a confirmation of the diagnosis. I think with Dr. Dupuy that the injection of lipiodol into the sphenoid is not without danger. I saw the case reported by him and remember vividly the terrible pain this patient had for a period of over a week: first intense headache, then pain in the neck, and finally pain in the back and lower lumbar region, which persisted for four or five days.

Dr. W. F. Henderson (closing): The point which has been brought out in discussion tonight with reference to the accuracy of different techniques in arriving at a correct diagnosis holds good when the interpretation is made by the originator and perhaps a few roentgenologists, but these methods have not a universal application, so that every physician is not in a position where he can go indiscriminately to any radiologist and secure an answer which is satisfactory.

We are trying to find something which will simplify the interpretation of the roentgenogram in the study of sinuses. We realize that lipiodol has previously been used by others in this work and we are merely endeavoring to facilitate its use and advance its efficacy. In talking to men outside of New Orleans who have not come in contact with Dr. Granger, it is viewed favorably. Listening to them talk about their sinus work, I gain the impression that there is a great deal of confusion about the use and interpretation of the methods so easily understood by the originator, and it is in such cases particularly that the methods we are advocating has a place. I do not doubt Dr. Granger's ability to make these diagnoses, as he says, but not every physician in the country has access to Dr. Granger, nor have all roentgenologists his skill.

Lipiodol supposedly injected
into the Sphenoid Sinus—

Hymel



We do not use this method in all cases of suspected sinus pathology, nor do we advocate it, but utilize it only after the fact has been established that there is some change in the sinuses, in order to shed further light on the condition.

Dr. A. I. Weil (closing): Replying to Dr. Brown, I wish to state that the Proetz displacement method fills the posterior sinuses indiscriminately, the sphenoids and the ethmoids, whereas the very purpose of this procedure is to discriminate between the posterior ethmoid and sphenoid so as to prevent entering and operating a posterior ethmoid and thinking we have operated a sphenoid.

I want to emphasize one fact which has reference to Dr. Brown's statement that a surgical procedure must precede the injection of lipiodol into the sphenoid. This is not at all true. We do not use the boring method advocated by Dr. Dupuy, nor do we take a burr and open the anterior wall of the sphenoid; we merely pass a cannula through the natural opening of the sphenoid, which can hardly be termed a surgical procedure. It is true that one does not always succeed in passing the cannula into the sphenoid; it sometimes goes into the posterior ethmoid. In such cases one might also miss the sphenoid in the case of operation and the information obtained by this method tends to prevent such an error.

Replying to Dr. Dupuy, I agree with him that to enter the sphenoid through the natural opening is not always feasible, but in those cases lipiodol cannot be introduced without the boring or the puncture method. Now I want it distinctly understood that we do not advocate the puncture of the sphenoid in order to introduce lipiodol, but only the injection of lipiodol in those cases where the cavity can be easily entered with the cannula. I am surely in accord with the opinion that a puncture or burr entering into the sphenoid for the simple purpose of injecting lipiodol is not justified under ordinary circumstances—it is only in exceptional cases where such risk should be taken.

Now in regard to Dr. Dupuy's measurements of the depth of the sphenoid by probe, I wish to say in the first place that though I did not mention his name in referring to this method in my paper, the omission was deliberate, as I criticized adversely that method, and it was only out of consideration for Dr. Dupuy that his name was not mentioned. At the same time, he will bear me out in the statement that I notified him personally that this matter was to be discussed in my paper, and requested him to be present to defend this method if he desired. There is no question in my mind, after seeing the plates which we have shown to-night, that those cases where we have shown the

posterior ethmoid to extend quite as far back as the sphenoid, reaching practically to the sella turcia, no method of measurement, either external or internal, will determine for us whether or not we are in the sphenoid.

MYOPIA IS ESSENTIALLY A PATHOLOGICAL CONDITION.

T. J. DIMITRY, M. D.,

NEW ORLEANS.

Myopia, an error of refraction, is the commonly adopted heading in textbooks to designate a condition in which the patient does not see objects clearly at remote distances. The habit of partially closing the lids has given the name "Myope," which is derived from the Greek, which means to close or shut the eyes. Myopia is defined as a dioptric condition in which rays of light from a distant object are brought to a focus before they reach the retina. In the normal eye the focus is on the retina. This displacement from the correct position is occasioned by one of the following changes: First, by an increase in the refraction of the media which the light has to pass through, and, second, by an increase of the diameter of the eyes. The myopia of the first is quite readily understood for the change in the lens, cornea or media are secondary to demonstrable pathological conditions; instances of an increase of curvature of lens observed in diabetic cataract; lens changes in any form of incipient or immature cataracts. The myopia associated with iritis; the myopia produced by increased curvature of cornea following inflammation of the cornea in which the cornea has become more convex. But the great problem needing explanation in the second, called axial myopia, in which the eye has elongated antero-posteriorly. Plempius as early as 1632 recognized the lengthening of the anterior-posterior diameter of the eye in myopia. Boerhave in 1708 agreed with this

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explanation and added the increased curvature of the cornea. Morgagni in 1761 demonstrated the length of the myopic eye. Heine showed conclusively the elongation to be in the posterior segment and not in the whole eye as was thought. It was a bulging from the equator backwards; this posterior section of sclera which is normally thicker than the anterior has thinned out to the dimension of the anterior. Even the posterior section may not be regularly bulged backwards, the sclera of the temporal side of the optic nerve may have a greater distention than noted on the nasal side. This distention is called a stapholoma. Arlt in 1854, again emphasized these changes and this axial elongation observation received general recognition as an existing condition. Myopia is not a condition observed in the infant. Ulrich and Schleich could not find a single case after examining many thousand babies. Many authorities are quoted as stating that in people living in the natural state, that is uncivilized, one will not find a single case of myopia. It meets with common approval that myopia increases during the first two decades of life and those called upon to use the eye for near work are the greater sufferers. Theories are numerous reciting an explanation of the elongation of the globes, but the hypotheses are contradictory, no single supposition being acceptable to any great number of investigators. Myopia is an error of refraction, but only concurrently with the elongation of the eye. Glasses are fitted which corrects the refracted defect but the co-existing stretching of the globe which undoubtedly preceded, is ignored. The different proposals in explanation continue to be debated and are not entirely satisfactory even to a few. Many of the very incipient changes observed in the myopic eye have provoked disappointing discussions and conclusions. It is generally recognized that there is a choroditis in myopia but it is stated not to be a pathological inflammation but is charged to atrophy. The latter atrophy is dependent on the stretching of the eye, so stated, and

without inflammation. Salzmann, Schwerenski, DeDecker and Masselon state the changes are spontaneous and primary, and recite concrete example of Bruch's membrane. Why the eye elongated (the axial myopia) is our debatable difficulty, and it is the purpose of this contribution to have you consider with me this problem. The hypotheses advanced for this increased diameter of the eye are based upon mechanical laws, thus ruling out pathological causes and asserting as essential factors in its cause the pressing and pulling by muscles of the eye. Philippi and Stilling claim that the superior oblique muscle presses and pulls the eye during near work producing tension within the globe with subsequent enlargement of the eye. Arlt claims the pressure alters the outflow of blood producing congestion, while Von Graefe charges the distortion to the action of the external and internal recti muscles, and goes so far as to recommend cutting of the muscles to correct the condition. The contour of the cranium and the position of the orbit, are charged as exciting cases for this mechanical pressure by different authors. Hasner claims the optic nerve is too short, pulling the sclera of the eye to an increase in length. Each of these mechanical theories has its champions and other authorities agreeing with a certain number of statements.

The mechanical explanation is made more acceptable because of statistics in which myopia comes on during the time the eyes are needed for excessive near work. The statistics prove the harmfulness of this excessive use of the eyes. Further, school classes for myopic children are being conducted in different sections of the countries admitting of this harmful effect, all aiming to correct the excessive use of the eyes. Randall's exhausted research on over two hundred thousand eyes confirm these results: that there is no myopia before the school period, and eleven and four-tenths per cent develop in the first three years of schooling with a slow

increase in the following years. These studies have been confirmed by others.

The writer accepts these facts which disapprove the contention that near work is the cause, for under the same condition of excessive near work a larger average of school children are not myopic. Advances in understanding what myopia is have been held back because of such mechanical explanations with promiscuous prescribing of glasses, assuming refraction as the cause with its associated near work. It appears reasonable to the writer to re-adopt and ask for further consideration for the abandoned views of Von Graefe, who at one time stated that myopia was a definite sclerico-choroditis, admitting thereby that inflammation and pathological changes were the cause. That these pathological changes in explanation of the condition should have been laid aside by himself and his confreres is in the writer's opinion a most unfortunate happening and has delayed the solution even to this time. Von Graefe deserted his original opinion because the microscopist was unable to find inflammatory changes in the incipient myopic eye and the subsequent changes were charged to pulling and stretching of the globe of the eye by intrinsic or extrinsic causes. It was unfortunate that he did not recognize that we had not sufficiently progressed in diseased histology to be able to detect microscopically a diseased condition, which, however, is present.

It is the purpose of this contribution to emphasize that the eyes are part of the whole body and bodily ailments do affect the eyes. Statistics are of little value in myopia if they do not rigidly consider the bodily condition of the myopic patient for an explanation of the cause. I have not been able to find a single example of a study of the general health of the myopic patient. It is unfortunate that specialization isolates or separates a part from the whole. Few diseases of the eye are primary *per se* and myopia is one in which the health of the body is an essential factor in its cause. It would be unjust to

give vent to such emphatic statements without reciting the comments of others in possible confirmation.. Had only Von Graefe stood by his original contention, his power and influence would have spelled progress in myopia, while his retraction of his original statement has delayed a solution on a very serious ailment. Parsons states that myopia is entirely congenital, while the higher grades have in addition a truly inflammatory factor. He further states that there is no denying that inflammatory changes are to be noticed in the fundus of the eye. Donders says that near work cannot be the sole cause for it is found among people who rarely use their eyes in this manner. Manthner voices predisposition to a weakened tissue. Lange says that the elastic fibres of the sclera are deficient. Horner claims the high myope to be ill nourished and anemic. Stilling made the same observation. Schon states that scleritis is always accompanied by choroiditis and it is not improbable that the converse can occur and that both are due to an annular scleritis. Donders in 1866 stated that myopia is a veritable disease. Hirschberg prescribes cod-liver oil for the recognized anemic patients with myopia. He states that he adopts the plan of treating the body rather than the disease. Arganorez claims it is due to disturbance of internal secretion and clinical examination has revealed the existence of heredo-syphilis. Edridge-Green never has seen a case of myopia which was caused by near work. Elsching says that the progress of myopia may be checked by improving the general health and treating heredo-syphilis. Lamare suggests the nasal sinuses as a factor in weakening the sclera in the production of myopia. Hirsch sees a close parallelism substantiating his theory that the toxins of tuberculosis give rise to myopia. Peter would direct his efforts against lowered bodily health in myopia. Koster definitely charges the cause of all forms of myopia to a pathological condition which is generally inherited chorior-retinitis.

These remarks taken from different sources are deserving of consideration and are a confirmation, to a degree, of the writer's contention that myopia is essentially a pathological condition. The writer defines myopia as a disease of the eyes resulting from body ailments, such as the commonly constitutional diseases and foci of infections, and still further charges that dietary deficiency diseases may lower the resistance of the sclera, which may bulge as a consequence. He believes that mechanical factors are only contributory and these mechanical factors would have no effect upon a healthy resisting sclera.

In conclusion, a study of myopia is the investigation of health itself.

The body harbors the factor productive of the condition and we should not be neglectful of certain bodily constituents which give strength to tissue, and which are found lacking in dietary deficiency diseases. It must be remembered that the sclera bulges because it is weak and has lost its power of elasticity.

DISCUSSION.

Dr. A. R. Crebbin (New Orleans): In looking over the various authorities, one is impressed by the various causes given for myopia, and often in the next sentence is contradicted. Ball, in his new edition, lists, among others:

Hyperinclusion of mesoblastic vitreous material into the second optic vesicle.

Size and shape of the orbit.

Dragging on lamina cribosa at optic nerve entrance.

Compression of external rectus (during excessive convergence).

Inflammation of the choroid and sclera at post, pole, produced by constant congestion, bending and stooping.

Duane in his notes in Fuchs states:

Excessive use for near, as main cause, is doubtful.

Overuse of accommodation and convergence as causes unlikely.

Then there is the question of hereditary tendency. Certainly while it is not, or seldom is,

congenital, there is a predisposition or a hereditary tendency due to anatomical peculiarities (slight resistance of the sclera) which predisposes to the development of myopia, when under conducive conditions like improper illumination and hyperopic astigmatism it is likely to take place.

So we are likely to feel, with the essayist that these are not the main causes but contributing causes, and back of it all there is some disease process. Von Graefe suggests some inflammatory processes in choroid and sclera, by which the sclera is rendered softer.

But what causes this? I may not go so far as Dr. Dimitry to say that it is syphilis, tuberculosis, etc., but it may be any one of diseased conditions that is a basic cause. Or I might mention the suggestion lately made, I think by Dr. Weiner, some endocrine disturbance. He goes so far as to blame the adrenals, and gives epinephrine (1-1000) one drop in eyes t.i.d., and claims that certain cases of progressive myopia have been arrested. I have been using this, but only for some months, and cannot give definite reports. May I suggest to you to try it and keep records as to the results?

Whatever the underlying cause, all modern writers call myopia a disease. Fuchs says: "Prescribing glasses for near-sighted persons requires much experience and a careful consideration of all attendant conditions. In no case should choice of the glasses be left to the optician."

Since we are recognizing it as a "disease," the prescribing of glasses for myopia by the optician should be prohibited, and, *ipso facto*, if we stress its pathological-disease aspect and insist on it being thus recognized, the care of myopia by the optician could be prevented eventually.

Dr. W. R. Buffington (New Orleans): I agree with Dr. Dimitry in part—myopia is a disease. Heredity certainly is a predisposing factor. We must not forget that in modern civilized life myopia is increasing; that in a large number of individuals it is progressive; that progressive myopia becomes a serious condition in adult life.

When discovered in an individual, the prescribing of correct lenses does not end our responsibility. We must follow the child to his home; we must look into his entire surroundings, his health, his hygiene. We must follow him into the school; we must look into the hours of study, the lighting system for study. If need be, we must limit the hours of study—then, and not until then, will we have done our full duty.

Dr. F. C. Bennett (Monroe): I would like to ask Dr. Dimitry why it is a fact that Germans and Jews are so predisposed to myopia?

Dr. T. J. Dimitry (closing): I thank those who have taken part in the discussion.

The thing I tried to drive home is that myopia is a disease and that it is entirely unjust for the optician and optometrist to prescribe glasses for this condition.

Answering Dr. Bennett, I do not know as a fact that Germans and Jews have more myopia than other people, or that this has been shown by statistics. I do not believe that the statement of Hoerner will back you up; I think from his statistics you will find that this is quite correct; he does not acknowledge any more myopia in the Jews or Germans than in other people. However, I know where to look for definite information on the subject and as soon as obtained, will be glad to give the doctor an answer, referring him to my authority.

SOME PRINCIPLES AND PRACTICES IN CARDIOLOGY.*

GEORGE R. HERRMANN, M. D.,†

NEW ORLEANS.

A diagnosis of heart disease carries with it in the minds of most of the laity and of some physicians, especially those afflicted, an inevitable, early, rapid, and horrible death sentence. It is, therefore, important that we pronounce this verdict only after the most searching study and seasoned deliberation. The loosely descriptive terms that are often thoughtlessly meted out to patients are admittedly fear inspiring. A carelessly dropped expression as, "valve leakage," "heart damage," or "angina pectoris," will be conjured into a most terrible malady, and the mental tortures of the thusly self-sentenced individual are often more demoralizing than are the actual concurrent physical suffering. Bitter experience dictates the necessity of scrupulous caution and diplomacy with a real individual insight into the make-up of the patient. In the discussions of the findings, none but stoics should be informed uncereemoniously of even the slightest cardiac abnormalities.

Physical abnormalities, such as murmurs, changed and adventitious heart

sounds, are of definite diagnostic and prognostic significance. The signs, we must admit, signify only valvular damage, but from the type and the degree of valvular damage we may fairly accurately infer the severity and the etiological agent of the original infection. Especially is this true when the infection has been, as it usually is, of a streptococcic, rheumatic or syphilitic nature. These practically never spare the myocardium, but damage the muscle as well as the valve. At the same time it must be recognized that the defective mechanism of the damaged valve adds a definite burden and this, if not taken into account in the prevention of repeated strains, will in the course of time contribute materially to heart failure. The early reliable signs of myocardial damage are obscure and the functional state of the heart muscle is at times indeed difficult to determine.

It should, however, no longer be true, as Austin Flint wrote the year after his experiences in Charity Hospital, New Orleans, that: "Truly fortunate are they who keep aloof from the stethoscope of the auscultator." We now have clearer conceptions of the prognostic significance, potentialities, and the interpretation of the various findings. We can differentiate definitely the grave from the insignificant lesions; we know better the possible complications and the usual progress of the various lesions; and the limitations to be placed upon an afflicted individual are more rationally understood and more clearly defined. With good psychologic approach we can reassuringly inform a patient of his condition without alarming him unduly. Then we can direct his mode of living so as to add years of productivity and comfort to his life.

HEART DISEASE.

It behooves us to get clearly in our own minds what we mean by the general term, "heart disease," and such other terms as we are prone to use. It seems to me advisable to limit the diagnosis of "heart disease" to such cases as present evidence from which we may fairly accurately infer

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that the heart muscle, through the effects of infection, strain, undernutrition or developmental disturbance, has been so damaged that it accomplishes its task only at the expense or sacrifice of more or less of its reserve. The state of the heart muscle is such that the strain of undue exertion, the toxic effects of intercurrent infection or the progressive nutritional disturbances of aging sooner or later precipitate the signs of myocardial insufficiency: congestive failure, edema, or cardiac pain.

RELIABLE CRITERIA.

The vast majority of individuals with heart disease present, as has been pointed out, one or more of the group of positive signs, while individuals with cardiac neuroses, functional or referred heart symptoms never present any one of these pathognomonic findings. The trustworthy evidences are such that the presence of any one of the signs is sufficient basis for the diagnosis of heart disease, and what is of equal importance, the absence of all of the signs is practically proof positive of the absence of organic, actual or potential myocardial changes or congenital malformations which will sooner or later produce symptoms.

We may consider the ten reliable criteria perhaps most logically in the order in which we would encounter them in the systematic routine physical examination. Inspection might reveal: (1) Significant engorgement of the neck veins; (2) visible displacement of the cardiac apex impulse; (3) abnormal pulsation of aneurysm. Palpation might, besides verifying the above, add: (4) Definite thrills, friction fremitus, and conspicuous shocks; (5) absolute irregularity or alternation of the rhythm and excessively low or high rate of the apex beat and the pulse; (6) sclerosis and tortuosity of all the peripheral vessels. Percussion, besides corroborating the displacement of the apex, might reveal its important relationship; (7) extremely large abnormal and distorted areas of great vessel and cardiac dullness. Auscultation, besides verifying and clarifying the rhythm

and rate disturbances and suggestive evidence of abnormal aortic sclerosis, might furnish such absolute signs as: (8) apical and basal diastolic murmurs, continuous humming or pericardial friction sounds; (9) persistent hypertension revealed by repeated blood pressure estimations with the patient at rest and, (10) laboratory evidence of chronic nephritis. All these are considered reliable criteria of conditions which are invariably accompanied by heart disease.

DISCUSSION OF EACH OF THE PATHOGNOMONIC SIGNS.

While any one of the positive signs is sufficient basis for the diagnosis of heart disease, nevertheless, it is not at all unusual to have several of the cardinal signs present in each case.

1. Significant engorgement of the neck veins means persistent overdilatation and prominence of the jugulars with the patient in an upright position, thus indicating a greatly increased venous pressure level far above that of the right cardiac atrium or auricle. Generalized stasis and back pressure of an embarrassed, overloaded heart with a definite myocardial insufficiency and a failing of the propulsive power is indicated. The presence of mediastinal tumors obliterating the great vessels by pressure must, of course, be ruled out as must, also, temporarily increased intrathoracic and intra-abdominal pressure from abnormal positions of the diaphragm and increased thoracic and abdominal muscle tension.

2. Visible displacement of the cardiac apex impulse is generally conceded to be the most definite and almost infallible clinical or bedside sign of enlargement of the heart. The outermost part of the circumscribed apex impulse is the best criterion of the size of the heart. This part corresponds to the left border of the normal or moderately enlarged heart, while in very large hearts, it does not quite indicate the full extent of the left border to the left.

An extension of the apex impulse beyond the midclavicular line or more than 15 centimeters to the left of the midsternal line

in the fourth, fifth, or better still, the sixth intercostal space is generally accepted evidence of cardiac enlargement. Cardiac enlargement is accepted as positive evidence of heart disease inasmuch as either persistent dilatation or hypertrophy are incompatible with normal function and integrity of the myocardium. With either, the circulation of the heart itself is embarrassed. Causes of displacement of the heart, such as, contralateral fluid or pneumothorax or homolateral collapse, must of course be absent. Besides the physical signs, fluoroscopic study, orthodiagrams, and teleoroentgenograms yield absolutely conclusive evidence and exact measurements of the cardiac shadow of the enlarged heart, and thus denote heart disease.

3. Abnormal pulsations of aneurysms are fairly commonly seen in the South, and one may infer safely from the presence of the manifestation of vascular syphilis that the patient more than likely has further aortic and coronary narrowing lesions and consequently heart disease. Even arteriovenous aneurysms of traumatic origin, if left unrepaired, will eventually, because of the accompanying low diastolic blood pressure result in nutritional disturbances in the myocardium, hypertrophy, and failure.

4. Definite thrills and conspicuous shocks, distinct "purrs," "taps," and "rebounds" transmitted to the palpating hands are palpable counterparts of murmurs and abnormal sounds. A diastolic thrill over the apex is produced by the same mechanism that gives rise to the diastolic rumble of mitral stenosis, while over the base the sign indicates aortic regurgitation, patent ductus arteriosus, and, if systolic in time, aortic stenosis, pulmonary stenosis or interventricular septal defect or aneurysm, as likely causes. Thus, it is evident that an unmistakable thrill is a dependable sign in itself, but it is always accompanied by other corroborating and significant findings. Vibration of the chest wall from an overactive heart is, of course, to be differentiated.

5. Absolutely irregular rhythm, alternation, excessive bradycardia, and tachycardia indicated in the apex beat or the pulse connote such significant mechanism disturbances as auricular fibrillation, flutter, heart block, and alternans. These disturbances, when persistent, are always initiated by and accompanied by serious myocardial damage. Clinical means are sufficient to establish fairly accurately these conditions with the possible exception of flutter and some cases of block. Electrocardiographic tracings establish absolutely the exact nature of rhythm disturbances. Blood pressure studies and pulse tracings, noting the alternating higher and lower levels, establish and graphically record this evidence of heart disease.

6. Sclerosis and tortuosity of all of the peripheral vessels, that is generalized arteriosclerosis, is rarely present in the accessible vessels only. The aortic root and the orifices of the coronaries are, as a rule, also involved, and the coronaries may even frequently be pathologic in the presence of apparently normal peripheral vessels. The nutritional disturbances consequent upon the impaired coronary circulation impair the structure as well as the function of the myocardium.

7. Extremely large and abnormally distorted areas of great retromanubrial and precordial dullness usually merely corroborate previously elicited signs as visible and palpable abnormal pulsations and displaced apex impulses, thus substantiating the diagnosis of aneurysm or enlargement of the heart or pericardial effusion. These first two conditions, as related above, are evidences of heart disease. Pericardial effusion is the result usually of an infection, and the myocardium is more or less affected simultaneously with the disappearance of the effusion. Adhesions persist and continue to embarrass the heart increasingly as time goes on.

8. Apical and basal diastolic murmurs, continuous hums or pericardial friction sounds indicate organic cardiac damage. The rumbling apical diastolic murmur

means mitral stenosis which is the result of the scarring of the valve leaflets following infection of the valves. Rheumatic fever or streptococcic infection we know, because of the presence of Aschoff Geipel or Bracht Wachter bodies, damage the myocardium at the time of the acute valvulitis and at each exacerbation thereafter.

The basal diastolic murmur is usually somewhat musical and is either due to rheumatic, streptococcic, or syphilitic aortic regurgitation. All of these infections, it has been pointed out, damage directly the heart muscle. At the same time the mechanics of the valve lesion add much work and the lowering of the diastolic and mean blood pressures further accentuate the vicious circle. The continuous humming murmur invariably diagnosticates a congenital lesion; such as, patent ductus arteriosus or interauricular or ventricular septum defect or arteriovenous aneurysm, any one of which lesions always puts the heart muscle to such a persistent strain that myocardial damage ensues. Pericardial friction indicates pericarditis, which, as pointed out above, usually also damages the heart muscle.

9. Persistent hypertension, when not associated with the menopause, presents as part and parcel of the picture, a widespread arteriolar change. The almost inevitable or accompanying coronary vascular changes together with the increased burden that the heart assumes in maintaining hypertension eventually results in cardiac hypertrophy and dilatation with myocardial changes. Consistent high blood pressure readings of 30 mm. or more of mercury above the accepted average normal for the patient's age and sex are, therefore, criteria upon which we may diagnose heart disease.

10. Chronic nephritis, through the effects of blood pressure, vascular and hematologic changes or through the circulation of toxic, abnormally split, or retained protein substances, invariably damages the heart muscle and produces great cardiac enlargement. It is possibly

true that the myocardial changes are not always secondary, but were initiated by the same toxins of the same infection that produced the acute renal irritation and damage.

THE HISTORY.

The anamnesis, when carefully developed chronologically and symptomatically, is a most important part of the clinical study of a patient with heart disease. The etiological factor and the functional state or cardiac reserve are most clearly defined in a good history. Nevertheless, with one exception, a diagnosis of heart disease cannot be made from the history alone. This is true primarily because the principal symptoms of heart disease may be produced by other conditions. For instance, dyspnea and cyanosis may be the result of cerebral, pulmonary, or blood disturbances, and edema likewise may be of renal or vascular origin, while palpitation is common in thyrotoxicosis and constitutionally nervous individuals. The whole symptomatology of organic myocardial insufficiency is complained of by the cardiac neurotic and the effort syndrome or neurocirculatory asthenia case, but none of these present the pathognomonic physical signs detailed above.

The rare exception to the rather dogmatic rules prescribed is the rare case presenting true paroxysmal cardiac pain, angina pectoris, or early coronary sclerosis or aortitis and none of the positive criteria enumerated. In this rare instance the characteristic history is a sound basis for the diagnosis of heart disease. Increased retromanubrial dullness and a systolic murmur, abnormally accentuated aortic second sounds in the absence of hypertension are corroborative signs from which we may infer, as Allbutt pointed out, the presence of possibly insignificant changes in the aortic root and the coronary orifices. Blood pressure rises during the attack and electrocardiographic abnormalities lend weight to the diagnosis from the symptomatology.

SUMMARY.

The importance of handling patients with heart disease psychologically is reiterated.

The necessity for a clear conception of what is and what is not heart disease is stressed.

CORRESPONDENCE.

October 25, 1928.

Dr. John H. Musser, Editor-in-Chief, New Orleans Medical and Surgical Journal, 1551 Canal Street, New Orleans, La.

Dear Doctor Musser:

In accordance with resolutions passed by the Orleans Parish Medical Society, October 22, I am hereby transmitting to you a statement of facts with regard to chiropractic support by the New Orleans Daily States which I presented to the Society as a matter of record:

Some four weeks ago a full column editorial appeared in the middle of the editorial page of the New Orleans Daily States urging all Orleans to join with Dr. Walter Fife and Dr. V. A. Nichols in observance of the "Kindness to Animals Week," which incidentally is sponsored by the Humane Society and not the Anti-Vivisection Society. This editorial went on further to point out that these men, being President and Secretary of the Anti-Vivisection Society respectively, were trying their best to make Orleanians be kind to animals. The next day on the first page of the Daily States appeared an article describing the death of a child from rabies, who had been treated at Charity Hospital for a dog bite two months previously, and intimating that thorough investigation of the Pasteur Department of Charity Hospital should be conducted.

In view of the fact that my boy was also bitten at the same time these other children were, and as I had been deeply moved by the death of this little fellow who was a neighbor of mine, and the majority of the children having been bitten in my own back yard, I proceeded to write Colonel Ewing a personal letter requesting him to publish same in his forum "For Fair Play." In this letter I offered to bet him a first mortgage note for \$5,000.00 on my property against his promise never to mention in commendation thereof the name of another chiropractor on his editorial page, and further to initiate a newspaper campaign of education relative to the merits of preventive inoculation against rabies in dogs, which wager was predicated on a test experiment upon six dogs which were to be inoculated with the virus of street rabies by Dr. W. H. Seemann who was also to keep the dogs under his observation. Three of the dogs were to be treated by

The ten groups of physical signs upon the basis of any one of which and in the absence of all of which one is justified in diagnosing the presence or what is equally important, the absence of heart disease.

The relative significance of the clinical history is briefly discussed.

any one or more chiropractors that Colonel Ewing should select, and the other three dogs were to be treated by the Director of the Pasteur Institute of Charity Hospital; the winning of the wager to be predicated on the results obtained in the dogs, I wagering that two out of three of the dogs treated with Pasteur treatment would survive a reasonable test period, and, further, that at least two out of three of the dogs treated by chiropractic would die during this same period.

It was further pointed out to Colonel Ewing that there was no law against employing free chiropractic upon dogs that the writer knew of; and also that inasmuch as even he recognized the prevalence of Texas cattle tick fever among our dairy cattle, that some chiropractic commission be requested to submit plans to Governor Long for eradicating same.

To date, now a month, this letter has not been answered nor published. I submit these facts to the Orleans Parish Medical Society believing that organized medicine should be made aware of the refusal of Colonel Ewing to accept a fair wager and with the hope that possibly they may discourage the blatant advertising of chiropractic by Colonel Ewing in the Daily States. With a fuller knowledge of the underhand and subterranean methods employed by chiropractors it may be possible in some measure to eradicate the source of the flood of vicious anti-vivisection and chiropractic bills which continually have to be met by solid cash outlays from the treasury of the Louisiana State Medical Society or the Orleans Parish Medical Society, to say nothing of the time spent by members of our organization in numerous trips to Baton Rouge.

A letter addressed and mailed at the same time to Colonel Ewing asking for the address of the Secretary of the Anti-Vivisection Society, "Dr. V. A. Nichols," was answered promptly by the Editor of the Daily States, Mr. J. Walker Ross, stating that the name should be "Professor V. A. Nichols," with offices in the Godchaux Building. A "personal" letter to "Professor" Nichols outlining the love of the writer for children and animals and requesting information relative to qualifications and possibilities of securing membership in this Society has also remained unanswered.

Yours very truly,

F. M. JOHNS, M. D.

NEW ORLEANS

Medical and Surgical Journal*Established 1844*

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

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RABIES, THE PUBLIC AND THE PROFESSION.

Elsewhere in the Journal will be found a communication from Dr. Foster Johns relative to his endeavors towards mitigating some of the undoubted harm done by certain publications in one of the New Orleans daily papers. This letter deserves editorial comment. From the facts as stated it seems that the chiropractors first are endeavoring to further their aims under the camouflage of a national society interested in the prevention of cruelty to animals, and secondly that a large and

prominent newspaper is apparently willing to lend assistance to this deception. The first of these statements needs no explaining to the medical profession. Under the cloak of some charitable organization or another, chiropractic mechanics frequently have endeavored to defeat the efforts of medical men to protect the public. They have done this before and it will be done again. That a metropolitan newspaper, run by men of intelligence and integrity should help in such deception by advertising the chiropractor, giving him what he is after, free advertisement, is beyond comprehension. The only thing that can be said is that they, the editors, do not understand the pernicious evil inherent in any organization which hopes to defeat public health measures.

In this connection it might be said that rabies is rife among the dogs of New Orleans. It is the stray, unwatched animal that is potentially dangerous to children particularly, but to adults as well. It is this animal that the chiropractor would protect. As an example of unthinking interference we would say that recently in New Orleans considerable notoriety was attained by the action of an individual who objected physically and pugnaciously to the methods employed by the official dog catcher in collecting stray animals to be impounded. If this man had ever seen a child die in the horrible agonies of hydrophobia never, we are sure, would he object to any measures to get rid of one of the most frightful of diseases, bred in the curs of the alleys. He would utter words of thanks that the authorities are attempting to control the source of the disease. He, the general public and the press, would bless the name of Pasteur, the greatest of Frenchmen who made possible a treatment which will prevent, it is true in not every case, but in by far the great majority of cases, the development of one of the most agonizingly horrible and frightful diseases, rabies.

LONGER LIFE WEEK.

Again this year the Committee of the Orleans Parish Medical Society has designated the week beginning December 3 as "Longer Life Week." Last year this annual program was inaugurated with much success, and at that time the Journal carried several articles emphasizing the importance of such a movement and the benefit to be gained from periodic health examinations.

The committee has again arranged to bring this important subject before the community by advertisement and public talks before most of the organizations, civic bodies and schools of the city.

Enough has been said regarding the importance of the movement. The profession should co-operate in every respect to further the activities of the Society along this line. Only by continuous effort will the community realize the benefits to be derived.



JANE GREY ROGERS: AN APPRECIATION.

The many readers of the Journal who are graduates of the Medical School of Tulane University will be saddened to learn

of the death of Miss Jane Grey Rogers, which occurred after a long and lingering illness at her home in New Orleans on Saturday, October 20th, 1928.

For over twenty years she presided over the Library of the Medical School and during this period she not only discharged her duties as librarian with distinguished ability and fidelity, but entered into her functions with a rare and altruistic conception of her service; not merely as a dispenser of knowledge and a mentor in the use of books, but as the friend of the students, solicitously concerned in every movement and enterprise that tended to their scholastic uplift and to their personal and collective betterment.

To many of the Alumni the realization of this "dread finale" will bring the grief and deep regret of parting with one of the strongest links in the chain of affection that bound them to their Alma Mater.

It is due to her whole-souled devotion to her task and to her sympathy and ever ready co-operation with the students in their work, that the reading rooms of the Library became their favorite and most frequented resort. In this way she was a powerful factor in developing in the student body a studious habit and interest in medical literature such as had never been known before her day.

But apart from her enduring and far reaching service as Librarian of the Medical School the passing of Miss Rogers will be lamented as a great loss by a wide circle of friends in and out of the profession, who appreciated and admired her rare intellectual gifts and superior literary attainments. Endowed with a brilliant mind, well trained by constant application to the fundamentals of the language and to the fountain sources of the literature, and, with a spontaneous ability for literary expression, she wrote prose or verse with equal facility. Her collection of published and unpublished verse is, in itself, a lyrical anthology of a high order in which she dis-

plays not only a complete mastery of English prosody but a creative faculty, a versatility in form and a fertility of imagination, that stands high above the level of that poetic mediocrity that flourishes so luxuriantly in our current literature. Over modest and unpretentious, she never obtruded her talents or erudition. But no one could be long in contact with her gifted mind without quickly recognizing her intellectuality and the great wealth of cultural lore that was stored within.

A number of her contributions on medico-literary subjects have appeared at different times in the editorial columns of this journal, but her tendency to self-effacement has caused the authorship to remain, in most instances, undisclosed.

The New Orleans Medical and Surgical Journal counts among its editors and col-

laborators, past and present, many who cherish the memory of this noble woman for her inspiring friendship, her helpfulness, her unfailing sympathy and encouragement during their most anxious and struggling student days. She gave unstintingly and unselfishly of her best with no thought of material consideration or of worldly reward. Her whole life seemed to have been inspired by the dictates of a heart that harkened to the spiritual admonition: "Freely ye have received, freely give." To the great host of the Alumni who are dispersed throughout the country and in foreign lands, and who remember the gentle Librarian at Tulane as their ever willing helper and friend, the passing of Jane Grey Rogers is only a transition from the stage of material human realities to that of the intangible but still living world of blessed memories.

DISTRIBUTION AND EXTENSION OF TUBERCULOSIS.—Gerald B. Webb, Colorado Springs, says that infection by the human tubercle bacillus is usually by way of the air. Infection by the bovine bacillus is by ingestion. In rare cases the tubercle bacillus may enter the body through the skin, usually through an abrasion. The mucous membrane is the first line of defense against the tubercle bacillus and penetration of intact membrane by bacteria is probably rare, though this may not be true in the lung. Primary tuberculosis of the nasal mucous membrane is almost unknown in spite of the frequency with which the tubercle bacillus can be found in the nasal passages of those exposed to tuberculosis patients. The lymph nodes constitute the second line of defense, and while many kinds of bacteria which have succeeded in passing the first line are easily destroyed by the lymph nodes, it is probable that they cannot overcome even a moderate number of tubercle bacilli which may be brought to them. It is in the lymph nodes that the first manifestations of tuberculosis are apt to be found. The mucous membranes may be penetrated by the tubercle bacillus without local lesions arising, and this is frequently the case in children when tuberculosis of various lymphatic chains is seen and no lesion of any mucous membrane detected. Meningitis is part of a generalized tuberculosis and more commonly associated with thoracic disease than with abdominal. It is a fairly frequent terminal complication of male genital tuberculosis

especially after surgical intervention. Bone and joint tuberculosis may originate from either thoracic or abdominal disease. The blood stream seems the only probable route of metastasis here. Tubercle bacilli may penetrate mucous surfaces such as those of the eye, nose, pharynx and bronchi without producing local lesions, and, wherever the portal of entrance may be, tubercle of the tracheobronchial lymph nodes will result. It may occasionally happen that bovine tuberculosis attacks the mesenteric lymph nodes while the tracheobronchial nodes remain normal; but it is doubtful whether choroid, tonsillar, lingual, pharyngeal or laryngeal tuberculosis ever takes place without concomitant infection of the tracheobronchial nodes. Such lesions, however, may occur in the absence of manifest pulmonary tuberculosis. It is known that infection has access to all organs and tissues by way of the blood stream. It has been conclusively proved that "bacillema" without acute general miliary tuberculosis occurs in a considerable percentage of cases of pulmonary tuberculosis, and there is a strong presumption, from the presence of tubercles in liver and spleen, that it occurs at some time in all, or nearly all. It has been shown that tuberculous enteritis can be produced experimentally by actual inoculation much more readily than by simple infection. It therefore seems reasonable to suppose that tuberculous enteritis and laryngitis do have a hematogenous origin, at least in many cases.—*Jour. A. M. A.*, 91: 769-772, 1928.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL STAFF—ORLEANS PARISH MEDICAL SOCIETY. JOINT MEETING.

A joint meeting of the Orleans Parish Medical Society with the Charity Hospital Staff was held Monday, November 12, 1928, at 8 p. m., in the Miles Amphitheatre, Charity Hospital, Dr. J. Birney Guthrie presiding.

Dr. G. C. Anderson presented a case of left brachial plexus palsy in a young colored male following a fracture of the left clavicle. An open reduction was done with wiring of the fragment. At this operation it was determined that there was no damage to the plexus roots, inasmuch as they responded to electrical stimulation. The paralysis was thought therefore to be due to pressure upon the plexus. The arm only was involved, there being no involvement of the shoulder muscles. Since operation motion has gradually been returning to the affected limb.

The second case presented was that of a contrecoup cerebral hemorrhage produced by a blow on the left side of the head which rendered the patient unconscious. There was a fracture of the skull in the parieto-occipital region with bleeding from the left eye, and complete paralysis of the left side of the body. A subtemporal decompression and bone flap operation on the right side failed to show any hemorrhage. The patient died and post-mortem examinations demonstrated a cerebral hemorrhage in the right hemisphere.

Dr. P. H. Jones presented a very interesting case for differential diagnosis. The patient, a white male, had been ill for the past 9 months with fever, chills and weakness. The fever came at irregular intervals lasting 2 to 3 weeks followed by an afebrile period of about 10 days. During the febrile period the temperature went to as high as 101° to 102° and chills occurred sometimes. The positive physical findings were an anemia, tachycardia, enlarged spleen, moderate size liver, and questionable ascites. All the laboratory tests had been negative. The probable diagnoses of tuberculosis, malaria, typhoid fever, Hodgkin's disease, Banti's disease, and Malta fever were considered and discussed. By a process of elimination the diagnosis of Malta or undulant fever had been made, though blood culture was negative and also agglutination reactions for micrococcus melitensis.

Dr. Johns discussed the disease, mentioning the facts that the disease occurred in cattle as well as goats and was endemic in Texas among other states.

Dr. Alsobrook presented a case of tubal abortion in which the symptoms and signs had been unusual. A diagnosis of multiple uterine fibroids with pelvic abscess had been made. Aspiration of the fluctuating pelvic mass on the right side showed blood. An exploratory laparotomy was done and a large blood clot found in that side. A right salpingo-oophorectomy was performed, a large fimbriated extremity of the tube being noted. The diagnosis of tubal abortion was confirmed by pathological examination.

Dr. G. Mayer presented a case which had had a Cesarian section performed for a markedly contracted pelvis. There was marked deformity of the lower extremities, congenital, and a flattened asymmetrical pelvis. Roentgenograms of the pelvis were shown. The patient had been given the test of labor for 18 hours before the low Cesarian section was done.

Dr. Ficklen spoke on the indications for Cesarian section, and the importance of always allowing the patient to have the test of labor.

Dr. I. L. Robbins presented a colored male who had had weakness, palpitation, and swollen ankles at night for 4 months. Several hours following an Ewald meal with removal of the gastric contents the patient had a true hematemesis. The gastric analysis showed free HCL 65, total acidity 85, with occult blood. Gastro-intestinal roentgenograms showed no organic pathology. There was hypertension, dilatation of the ascending aorta, and a slightly enlarged heart. The blood pressure fell progressively and the patient showed no further discomfort. The case was regarded as one of hypertension causing this gastric hemorrhage.

Dr. J. H. Smith mentioned a similar case which had occurred under his observation. He considered the cardiac condition the cause of the gastric hemorrhage in his case, rather than organic pathology, and agreed with Dr. Robbin's impression of his own case.

WILLARD R. WIRTH, M. D.

TRANSACTIONS OF THE CHARITY HOSPITAL.

SURGICAL SECTION.

The October meeting of the section was devoted entirely to an interesting presentation on spinal anesthesia by Dr. Earl Garside. In a brief summary Dr. Garside traced the history of this form of anesthesia to the present day. The various objectionable features to spinal anesthesia were

considered and the reason for their existence given. Besides, it was pointed out that the various drugs used in the past were found to vary in toxicity so that the danger was increased according to the drug used. It was pointed out that novocain was the least toxic, and then came apothetin, butyn and stovain—in the order named.

The diffusion that takes place when novocain is injected into the spinal canal was explained to be the most objectionable feature. Dr. Garside pointed out that Dr. Geo. P. Pitkin of New Jersey has been able to overcome this by introducing a new drug called spinocain; and which he explained was "a solution of novocain in a special starch paste and alcohol solvent, each cubic centimeter containing 100 mg. of novocain."

Because the specific gravity of this solution is lighter than that of spinal fluid (1.006 for spinocain and 1.074 for spinal fluid) it will float on the latter; and is thereby controllable. The lightness necessitates the use of the Trendelenburg position. This permits the solution to float toward the sacrum and away from the brain. The height of anesthesia is regulated by the amount of spinal fluid withdrawn in the syringe and reinjected, thus permitting expansion, but not diffusion. Accordingly, a spinal sacral block is obtained by injecting the spinocain solution as it is removed from the ampule and without aspiration of spinal fluid. The patient is placed in a fifteen degree Trendelenburg position. Anesthesia of the lower extremities and extending to the iliac crests can be obtained by aspiration and reinjection of 4 c. c. of fluid. Umbilical anesthesia by aspiration of 6 c. c.; and anesthesia to the costal margin by aspiration of 8 c. c. of fluid.

Dr. Garside explained, also, that the solution used to induce local analgesia over the points through which the needle is to be introduced into the spinal canal, contains 50 mg. of ephedrin hydrochloride; which is found to last longer than suprarenin.

Finally, he explained that Dr. Pitkin has prepared another similar solution, but with a higher specific gravity than spinal fluid; and which will permit the use of the reverse Trendelenburg position.

Dr. Garside showed, by demonstration, how a pure novocain solution diffused through a saline solution of spinal fluid specific gravity; how the light spinocain floated on this same solution; and how heavy spinocain sank to the bottom of this solution.

In the discussion which followed, Dr. Urban Maes pointed out that "it would be well to state the average duration of anesthesia with spino-

cain." Dr. Garside explained that the length of time averaged two hours; and also went into some details explaining how the various regions became anesthetized—that is—the order in which this takes place.

FRANK L. LORIA, M. D.

STAFF MEETING VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL.

October 10, 1928.

Special Case Reports.

Osteomyelitis of the Cranium—Dr. A. Street.

A boy of fourteen years, admitted on August 31, 1928, gave the history of having been struck on the left eye by the fist of another boy on July 2, 1928. As a result of this blow, he fell and struck the back of his head on the floor. There was headache and aching over the eyes from the time of accident. The region around the eye was swollen, and ten days later he had fever and a convulsion. He had been treated at another hospital for frontal sinus disease, but did not improve. Later an abscess formed high on the forehead and much pus was evacuated. There was considerable improvement, but the swelling did not subside and the infection over the abscess did not heal.

Physical Examination: The patient was weak and pale, but well nourished. Pulse 82, respiration 20, temperature $99\frac{2}{5}^{\circ}$. There was a suppurating wound high in the midline over the forehead and another area of suppuration posterior to this. There was no edema of the orbital region. Cervical lymph nodes were barely palpable and not tender. The general physical examination, including roentgenogram of the chest, showed nothing additional. The right nostril showed no evidence of disease, but the left contained a purulent exudate from the left frontal sinus. A spinal puncture was done previous to this with negative findings and was repeated at this time.

The blood examination shows: Hemoglobin, 77%; erythrocytes, 3,176,000; leukocytes, 9,700; differential count: small mononuclears, 41%; large mononuclears, 2%; neutrophils, 55%; eosinophils, 2%; blood Wassermann test and Kahn test were negative. Tissue examination from the wounds showed nothing suggestive of tuberculosis.

Roentgenograms of the cranium showed extensive destruction of bone from the region of the frontal sinuses back to and including part of the occipital bone. Extensive areas of the parietal bones were included, but the temporal bones were apparently uninvolved. There appeared to be a tract in the frontal bone leading into the left frontal sinus.

Treatment: The radical type of treatment as advised by McKenzie seemed out of the question on account of the extent of bone disease. In an attempt to control the spread of disease into the flat cranial bones longitudinal incision was made from a point on the forehead about one-half inch below the hair line backward along the sagittal suture to a point which exposed normal occipital bone.

The flaps on each side were then freed until apparently normal bone was reached. No attempt was made to dislodge the necrotic portion of bone. Strips of gauze packing soaked in vaseline were placed against the surface of the bone and the wound left open. The packing was not disturbed for one week. The patient was quite weak for three or four days following this operation, but since that time has gradually gained in weight and strength and the temperature has subsided.

On removal of the vaseline gauze packing, numerous large and small sequestra were easily picked out of the wound and some sequestra have been removed at each dressing until recently, when only granulation tissue is evident and apparently no further sequestra forming.

The next step in treatment will probably be exposure of the frontal sinuses by external incision and removal of the anterior walls and of such portions of the frontal bone as may seem necessary.

DISCUSSION

Fortunately the above described condition is not common. However, this is the fourth case

that has been treated in this hospital. One followed a prolonged fever that had been diagnosed as typhoid; one followed chronic mastoiditis; one in a baby following chronic otitis media; and the above case which seemed to be the result of trauma and frontal sinus disease. Of these cases the first three were well advanced when admitted. Two died of extension of infection into the brain, and the baby died with septicemic multiple metastatic areas of suppuration.

On looking up this subject in the usual text books and systems of surgery I find rather incomplete information. Tuberculosis or syphilis was evidently formerly held to be the cause of the majority of such cases. Although some of the cases unquestionably are caused by tuberculosis and by syphilis, the records of reported cases do not indicate that anything like a majority of cases result from such causes.

For the convenience of others who may find it necessary to review this subject, references are submitted.

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DEFECTIVE GAS-HEATING APPLIANCES CONSTITUTE SERIOUS HEALTH HAZARD.—

With cold weather approaching, a warning of danger to life or at least serious discomfort, from breathing the fumes produced by improperly adjusted or poorly constructed heating appliances, is sounded by the United States Bureau of Mines, Department of Commerce. Household-ers will be using more gas and simultaneously will decrease ventilation by closing up their homes in order to

maintain comfortable temperatures. Many persons suffer discomfort and ill-health in the form of lassitude languor, headache, and nausea without suspecting the cause to be carbon monoxide arising from the improper functioning or improper use of their gas appliances. Cases of mild to moderate forms of carbon monoxide poisoning are far more numerous than serious or fatal cases and are usually forerunners of the serious type.—Bull. Department of Commerce, October 23, 1928.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

Besides the regular meeting of the Board of Directors the Society has held one Joint Clinical Meeting with the Charity Hospital Staff and one regular Scientific Meeting.

At the Joint Clinical Meeting interesting cases were presented by Drs. H. B. Alsobrook, Gilbert C. Anderson, P. H. Jones, Jr., G. A. Mayer and I. L. Robbins.

At the regular Scientific Meeting the follow program was presented:

The Diagnosis of Myocardial Insufficiency: Results obtained with a Modification of the Dwight-Frost Cardio Respiratory Test.

By.....Dr. Allan Eustis
Discussed by Drs. E. L. Faust and Upton Giles.

Report of one thousand cases of Hemorrhoids treated by Office Methods.

By.....Dr. J. W. Warren.
Discussed by Dr. W. A. Love.

Fractures and Dislocations of the Cervical Vertebra.

By.....Dr. D. H. Theodore Simon
Discussed by Dr. Paul A. McIlhenny.

The Delegates and Alternates to the Louisiana State Medical Society elected at the regular meeting are:

Delegates: Drs. S. M. Blackshear, H. B. Gessner, F. J. Chalaron, L. L. Cazenavette, H. W. Kostmayer, E. Denegre Martin, E. L. Irwin, P. Graffagnino, P. A. McIlhenny, B. A. Ledbetter, and M. J. Lyons.

Alternates: Drs. F. M. Johns, H. Theodore Simon, J. Birney Guthrie, J. F. Dicks, M. J. Gelpi, J. T. O'Farrall, L. A. Fortier, C. J. Bloom, W. J. Durel, A. Jacobs, and M. Bradburn.

The regular election of Officers will take place Saturday, December 8, at the offices of the Society, 1551 Canal Street. The voting to be between the hours of 10:00 A. M. and 12:00 noon; 2:00 and 5:00 P. M. and 7:00 and 8:30 P. M.

The Orator for the coming Stanford E. Chaille Memorial Oration to be held Tuesday, December 4, will be Dr. Carl J. Wiggers, Professor of Physiology of the School of Medicine, Western Reserve University of Cleveland, Ohio. The title of his paper will be "The Value and Limitations of Laboratory Methods in Clinical Investigation of Cardio-vascular Diseases."

Longer Life Week will be held during the week of December 3-8. The Chairman of the

committee of arrangements for this week is Dr. Leopold Mitchell. During this week the value of periodic health examinations will be broadcast through lectures before schools, cooperative clubs, radio, luncheon clubs. Posters will be placed in the department stores, hospitals and street cars.

The members will note that bills for dues contain a special assessment of \$1.00 which was levied by the Louisiana State Medical Society to defray the expenses in Baton Rouge of the fighting and defeating the proposed chiropractic laws. Those who have not paid same will kindly do so at once.

The first quarter insurance for the year 1929 will be due on December 5, 1928. It is requested that all policy holders send in this quarterly amount of \$9.93 or if they decide to pay for the year the premium will be \$39.72.

Members who have not yet sent in their photographs for the coming edition of the history of the Orleans Parish Medical Society to be edited by Dr. A. E. Fossier are requested to do so at once as the manuscript is ready to be turned over to the publishers.

The following doctors have been elected to membership:

ACTIVE MEMBERS: Dr. Bernard Hochfelder and Dr. Seaborn J. Lewis.

INTERNE MEMBERS: Dr. Herbert E. Cannon and Dr. Jack E. Strange.

TREASURER'S REPORT.

Actual Book Balance, 9/30/28.....	\$1,685.05
Receipts during October.....	\$1,669.14
	<hr/>
	\$3,354.19
Expenditures	\$3,271.81
	<hr/>
Book Balance 10/31/28.....	\$ 82.38

LIBRARIAN'S REPORT.

One hundred three books have been added to the Library during October. Of these 81 books were received by gift and 22 were from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is appended herewith.

Gifts of Journals, books and reprints have been received from the Cleveland Academy of Medicine Library, Jackson County Medical Society (Kansas City), Emory University and Tulane University.

Miss Marshall while on vacation in September attended the meeting of the Medical Library Association at the New York Academy of Medicine. A full report of this meeting will be given at a later date. The sessions were largely attended and were most instructive and inspirational.

NEW BOOKS.

Mendel—Psychiatry. 1920.

American College of Surgeons—15th yearbook. 1928.

Rockefeller Foundation—Methods and Problems of Medical Education. 1928, v. 10.

Royal Society of Tropical Medicine and Hygiene. Yearbook. 1928.

College of Physicians of Philadelphia Transactions. 1927.

Henderson—Gilbertus Anglicus. 1928.

Evans—Recent Advances in Physiology. 1928.

National Research Council—Bulletin. July, 1928.

Carter—Bacteriology for Nurses. 1928.

Alvarez—Mechanics of the Digestive Tract. 1928.

Kanner—Folklore of the Teeth. 1928.

Audle—Calcium Therapy. 1928.

Wyard—Handbook of Diseases of the Stomach. 1927.

Wilson—Physiological Chemistry. 1928.

John—Diabetic Manual for Patients. 1928.

Barnhill—Nose, Throat and Ear. 1928.

Juilly—Practical Surgery of the Abdomen. 2v. 1928.

Young—Urological Roentgenology. 1928.

Gradwohl—Blood and Urine Chemistry. 1928.

Eisendrath—Textbook of Urology. 1928.

Eddy—Nutrition. 1928.

LaVake—Clinical Gynecology and Obstetrics. 1928.

Pearson—Recent Advances in Diseases of Children 1928.

Bainton—Classification and Diagnosis of Heart Disease. 1928.

Fitch—New Pocket Medical Formulary. 1928.

H. THEODORE SIMON, M. D.,

Secretary.

THE THIRD CHAILLE LECTURE.

The Third Chaillé Lecture will be delivered December 4, at 8:00 p. m., by Dr. C. J. Wiggers, Western Reserve University, who will speak upon "The Value and Limitations of Laboratory Methods in Clinical Investigation of Cardiovascular Diseases." The Society is indeed fortunate to have a master physician deliver this lecture adding his name to the two distinguished names of the men who have preceded him, Drs. Allen Whipple and M. G. Seelig.

Dr. Wiggers is one of the outstanding men of medical science in this country. He was born in Iowa in 1883, and graduated from the University of Michigan Medical School in 1906. In 1911 he was appointed Assistant Professor of Physiology of Cornell University Medical School, and since 1918 has been Professor of Physiology of Western Reserve University Medical School. Dr. Wiggers, as a physiologist, has been interested primarily in the development and adaptations of optical methods of registration to a study of normal and abnormal conditions of the circulation. As a result of special studies in the field of work that he has cultivated so successfully, some 98 articles have appeared in the more prominent journals of physiology and medicine published in this country. Dr. Wiggers is also the author of three books, a "Brief Text of Physiology", "Circulation in Health and Disease", "Pressure Pulses in the Cardiovascular System," while a fourth book, "The Principles and Practice of Electrocardiography" at present time is in press. The Chaillé lecturer for 1928 is a member of many scientific societies and organizations.

The medical profession in the City of New Orleans and their friends who are interested in medical subjects are cordially invited to hear this lecture. Because the lecture is given under the auspices of the Orleans Parish Medical Society must not be felt that only members of the Parish Society are welcome. It is earnestly hoped that many of the medical men from the surrounding parishes will attend this most valuable and instructive presentation.

HOW TO KILL A MEDICAL SOCIETY.—

Don't come to the meetings. If you come, come late. If the weather doesn't suit you, don't think of coming. If you do attend a meeting, find fault with the work of the officers and other members. Never accept office, as it is easier to criticize than to do things. Nevertheless, get sore if you are not appointed to a committee; but if you are, do not attend the committee meetings.

If asked by the chairman to give your opinion regarding some important matter, tell him you

have nothing to say. After the meeting, tell everyone how things ought to be done. Do nothing more than is absolutely necessary, but when other members roll up their sleeves and willingly and unselfishly use their ability to help matters along, howl that the organization is being run by a clique. Hold back your dues as long as possible, or don't pay them at all. Don't bother about getting new members.—*The Aesculapian*.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

IMPORTANT NOTICE!

On May 31, 1928, we had the occasion to address you a communication in regard to the proposed history of the Louisiana State Medical Society, which is presently being prepared by Professor Rudolph Matas, with the support of the House of Delegates.

We did not hear from you as to your wishes in regard to subscribing to this valuable book, and felt that probably the letter may have been misplaced or inadvertently overlooked by you. We would, therefore, again call your attention to this appeal made by the Louisiana State Medical Society for the purpose of securing subscriptions in order that a satisfactory budget for the preparation and publication of same may be arranged.

We would ask that you kindly execute and return at once the post card sent you. It is impossible for the Committee to know the number of copies of the history to prepare without having available information as to the wishes of each member. The Executive Committee has favored this means of indication rather than the imposition of a special assessment, which would be needed if not sufficient subscriptions are received. We therefore respectfully ask that you give this your prompt attention, and let us hear from you at once.

P. T. TALBOT,
Secretary-Treasurer.

Dr. H. Daspit, Dean, and Professor of Psychiatry, Graduate School of Medicine of the Tulane University of Louisiana, addressed the Sixth District Medical Society meeting at the East Louisiana State Hospital, Jackson, La., Wednesday, November 14, 1928, on The Psychiatric Aspects of Chronic Epidemic Encephalitis.

MEETING OF THE ST. TAMMANY PARISH MEDICAL SOCIETY.

The Society met in Slidell Friday night at 8 P. M. on November 14. The following members were present: A. G. Maylie and R. B. Paine of Mandeville, J. K. Griffith, F. R. Singleton and J. F. Polk of Slidell, H. D. Bulloch, J. F. Buquoi, L. Roland Young and J. F. Young of Covington, and A. H. Herrin of Bush P. O., Ia. Dr. Laurence Young attended as a guest, and Drs. Carroll Allen, O'Ferrall and Potts of New Orleans were present. Dr. Allen was the specially invited essayist of the evening, who in his goodness had Drs. Potts and O'Ferrall to join him and motor over into St. Tammany and help make our meeting a bigger success.

The President, Dr. F. F. Young, and Secretary-Treasurer, L. Roland Young, were at their respective posts and after the regular order of business, etc., Dr. Allen's paper, the title of which was The Diseased Gall Bladder, was read and created a lot of discussion, particularly questions. Drs. Potts and O'Ferrall joined in this and they were listened to with a great deal of interest as was that most unusual paper crammed with the latest information on the gall bladder. These New Orleans M. D.'s were given a rising vote of thanks. On adjournment all retired to the Golden Goose Cafe where all enjoyed a nice cold luncheon and hot coffee.

L. ROLAND YOUNG, M. D.,
Sec-Treas.

NEWS ITEM.

Members of the faculty and teaching staff of the Graduate School of Medicine of the Tulane University of Louisiana who attended, and those who presented papers at the meeting of the Southern Medical Association, Asheville, N. C., November 12 to November 15, 1928, are as follows:

Drs. R. C. Lynch, Urban Maes, W. H. Harris, P. J. Carter, A. L. Levin (officiated as Secretary of the Section on Gastro-enterology), T. B. Sellers (officiated as Secretary of the Section on Gynecology),

Dr. H. W. Kostmayer, In Hysterectomy for Benign Diseases, Should the Cervix Always Be Removed?

Dr. Isidore Cohn. The Surgeon, the Anesthetist and Their Patient;

Dr. Sidney K. Simon and Dr. D. C. Browne, The Medical Aspect of Chronic Duodenal Stagnation;

Dr. P. J. Kahle, Pre-Operative and Post-Operative Care of Prostatics;

Dr. Maurice J. Gelpi, Post-Operative Mortality and Morbidity in Gall Bladder Operations; and Considerations of the Anesthetic Factor;

Dr. E. C. Samuel, Chairman of the Section of Radiology, Roentgen Therapy of Pertussis;

Dr. W. F. Henderson, Dilated Duodenum, Roentgenologically Considered;

Dr. D. N. Silverman and Dr. Herbert Weinberger, Recent Advances in Gall Bladder Physiology;

Dr. Muir Bradburn and Dr. W. P. Bradburn, X-ray as Related to Industrial Surgery;

Dr. W. A. Wagner, The Similarity of Symptoms and Signs of Sphenoiditis to Intracranial Lesions and Their Differential Diagnosis.

ALVARENGA PRIZE.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about Three Hundred Dollars, will be made on July 14, 1929, provided that an essay deemed by the Committee of Award to be worthy of the Prize shall have been offered.

For further details of the competition, apply to John H. Girvin, Secretary, 19 South 22d Street, Philadelphia, Pa.

BABY'S TRAVEL KITCHENETTE.

When you expect to travel with your baby, you would be lucky if you had the little folder published by the division of maternity, infancy, and child hygiene of the New York State Department of Health, which describes the equipment of a baby's travel kitchenette and gives directions as to how to make the baby's journey safe and comfortable. The equipment is that needed for a journey of a week or 10 days with a baby from 9 months to a year old, and directions are given for the preparation and modification of the standard diet for a child of that age in order to provide proper food that can be readily obtained and easily transported. The New York State Department of Health is, of course, located at Albany.

U. S. PUBLIC HEALTH SERVICE ORDERS.

Senior Surgeon L. L. Lumsden. Directed to proceed on Nov. 7, 1928, from Washington, D. C., to St. Louis, Mo., and such other places in the States of Missouri, Arkansas, Tennessee, Georgia, Alabama and Louisiana as may be necessary, and return, in connection with rural sanitation studies.

A. A. Surgeon R. E. Bodet. Relieved from duty about Nov. 10, at U. S. Quarantine Station, New Orleans, La., and assigned to duty at U. S. Quarantine Station, Mobile, Ala.

AMERICAN COLLEGE OF SURGEONS.

The next annual Clinical Congress of the American College of Surgeons will be held in Chicago, Illinois, October 14 to 18, 1929.

EIGHT LEPEERS RELEASED AS APPARENTLY CURED.

The Public Health Service has recently authorized the probational release of eight lepers from the National Leprosarium at Carville, La., as no longer a menace to the public health. These eight lepers have been under treatment at the National Lepre Home for varying lengths of time, ranging

from two years to seven years. It is of interest to know that leprosy, the dread disease of the centuries, is beginning to be conquered by improved modern scientific medical treatment.

The National Leprosarium at Carville, La., has been operated by the U. S. Public Health Service for a little more than seven years. During that time 37 lepers have been released or paroled as being no longer dangerous to the public health. Only one of these lepers has suffered a relapse and has had to resume treatment. More than 300 lepers are now under treatment at this institution.

COMMISSION ON MEDICAL EDUCATION.

New Haven, Conn.

October 18, 1928.

New Orleans Med. & Surg. Jour.,
1551 Canal Street,
New Orleans, La.

My Dear Sir:

Under separate cover we are sending you a copy of our Third Report. We shall be glad to supply any of your subscribers with additional copies gratis.

Yours truly,

W. C. RAPPLEYE, M. D.

MEDICAL PROFESSION OF WESTERN HEMISPHERE TO CONGRESS IN HAVANA.

The next congress of the Pan-American Medical Association will be held in Havana, Cuba, from December 29, 1928, to January 3, 1929. The program, which is being arranged by the President, Dr. Fred H. Albee of New York City, will be a strong one, and will include four orations, upon the subjects of surgery, medicine, pediatrics, and tropical medicine.

Dr. William J. Mayo will give the Oration on Surgery, and Dr. Lewellys Barker of Johns Hopkins University the Oration on Medicine. Papers will be read in both Spanish and English.

This congress will be representative of the medical profession of the entire Western Hemisphere. Chapters of the Association have been and are being organized in various centers of North America and Central America, as well as in the Antilles, all of which will be represented at the Congress.

One of the recent accomplishments of the Pan-American Medical Association is the establishment of the Pan-American Hospital in New York City for the benefit of the Latin-speaking people

A large attendance is solicited.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

The South Mississippi Medical Society will meet in Laurel, Mississippi, on December 13. Their program will be as follows:

1. Tumor of the Brain—Dr. W. A. Dearman, Gulfport.
2. Eczema—Dr. R. W. Hall, Jackson.
3. Artificial Feeding of Babies—Dr. C. G. Wright, Hattiesburg.
4. A Paper—Dr. C. H. Holbrook, New Orleans.
5. Pellagra—Dr. J. S. Gatlin, Laurel.
6. A Paper—Dr. C. M. Davis, Laurel.

At this meeting officers for the year, 1929, will be elected.

Dr. C. J. Lewis, Assistant Superintendent of the South Mississippi Charity Hospital, Laurel, has resigned to enter private practice in Meridian.

Dr. Thos. R. Beech, Ellisville, Mississippi, has been appointed Assistant Superintendent of the South Mississippi Charity Hospital in Laurel to replace Dr. C. J. Lewis.

The Issaquena-Sharkey-Warren Counties Medical Society held its regular monthly meeting in Vicksburg on November 13th. The following program was presented:

1. Bismuth Salts in the Treatment of Syphilis—Dr. W. C. Pool, Cary.
2. Intestinal Obstruction—Dr. H. H. Johnston.
3. Dental Surgery and the Medical Profession—Dr. A. G. Tillman, Jr.

The Issaquena-Sharkey-Warren Counties Medical Society will hold its annual meeting on December 11, at which time Dr. J. H. Musser, New Orleans, Professor of Medicine at Tulane; Dr. Guy Caldwell, Shreveport, Orthopedic Surgeon, and one other equally authority, will be the speakers. The officers of the Mississippi State Medical Association and of the Louisiana State Medical Association have been invited and many of them have already accepted.

The Staff of the Vicksburg Sanitarium and Crawford Street Hospital held its monthly meeting on November 10th, with the following program:

1. Tubercular Peritonitis—Dr. J. A. K. Birchett, Jr.
2. Post-operative Cardiac Decompensations—Dr. L. J. Clark.

3. Carcinoma of the Cervix Uteri—Dr. W. H. Parsons.

4. Gangrene of the Testicle—Dr. S. W. Johnston.

5. Demonstration of Radiographic Studies:

(1) Osteomyelitis of knee joint, injected with bismuth paste.

(2) Carcinoma of stomach.

(3) Osteo-sarcoma of shoulder.

(4) Bone cyst of mandible.

(5) Cholelithiasis.

(6) Tumor of mediastium.

(7) Ureteral Calculus.

(8) Renal Calculus.

6. Demonstration of Pathological Specimens:

(1) Adeno-carcinoma of stomach.

(2) Papillary cancer of ovary.

(3) Adeno-carcinoma of mammary gland.

(4) Hypertrophy of prostate (2).

The Central Medical Society and the Issaquena-Sharkey-Warren Counties Medical Society have arranged for two joint meetings to be held early next year. At the January meeting the Central Medical Society will be the host and in February the joint meeting will be held in Vicksburg. The dates of these meetings have not been announced as yet.

Miss Lelia Clements, dental hygienist of the Laurel school, reports that the white children show a total average of 72 per cent gold teeth while at the negro schools an average of 57 per cent was found on first examination.

SHEELY-FOURNOY.

On November 8th Miss Regina Hariston Flournoy and Dr. Wallace Polk Sheely, of Gulfport, were married at the home of the bride's father, Mr. J. D. Flournoy, of Columbus. Dr. and Mrs. Sheely are spending their honeymoon in Cuba.

The Journal takes this opportunity to offer its sincere good wishes to them.

Laurel and Jones County nurses announce the establishment of a Central Registry for nurses at Laurel.

The Board of Aldermen of Aberdeen have recently appointed a committee to select a site for a community hospital, to cost \$50,000. Press reports state that Senator M. C. Young introduced a bill

in the Mississippi Legislature by which the state will assist the town and county in providing for the maintenance of charity wards in the new institution.

The Holmes County Community Hospital at Lexington announces a campaign to raise \$50,000 for the erection of a modern hospital building.

On October 1, Dr. H. C. Ricks assumed his duties as Director of the Bureau of Communicable Diseases, Mississippi State Board of Health, to succeed Dr. Hays.

Dr. Ricks was born in Georgia in 1892. His preliminary education was obtained in the public schools of Early, County, Georgia; Locust Grove Institute, Locust Grove, Georgia; and Cyrene Institute, Cyrene, Georgia. He was graduated in medicine from Emory University in 1916, and served his internship at the St. Louis South Western Railway Hospital, Texarkana, Ark.

He was a member of the U. S. Army Medical Corps from August, 1917 to September, 1919, serving sixteen months in France with the Third Division. After the war, he spent four years in private practice in Durant, Oklahoma.

In May, 1924, he was graduated from the U. S. Army Medical Field Service School, Carlisle, Pennsylvania, after which he served as Director of Laboratories of Oklahoma State Department of Health from 1924 until taking up his work in Mississippi. He was also graduated from Johns Hopkins University in June, 1927, receiving the Certificate of Public Health. His field training was obtained with the International Health Board, Malaria Section, Leesburg, Georgia; State Boards of Health of North Carolina, Georgia and Alabama.

Dr. Ricks is a member of the Oklahoma State Medical Society and American Medical Association.

It is to be hoped that the profession of the State will aid Dr. Ricks in the conduct of his bureau by reporting promptly all communicable diseases.

Dr. R. C. Johnston, of Laurel, was severely injured in a recent automobile wreck. Last reports state that he is convalescing.

The annual convention of the Mississippi State Graduate Nurses Association is to meet in Laurel in 1929.

The Delta Counties Medical Society held its semi-annual meeting in Rosedale on October 17th, with Dr. R. M. Donald in the chair. Papers were

presented by Drs. Owens, Janney, Mecklin, Denman, McIntosh, Speed and Paul Gamble.

The following officers were elected for the ensuing term:

President—Dr. G. M. Barnes, Belzoni.

Secretary—Dr. R. C. Finaly, Greenville.

Vice-presidents:

Washington County—Dr. Lewis, Greenville.

Humphrey County—Dr. Higdon, Belzoni.

Sunflower County—Dr. Mancill, Indianola.

Bolivar County—Dr. Noble, Rosedale.

Leflore County—Dr. Brister, Greenwood.

The next meeting will be held in Drew, Mississippi.

The training station at Indianola reports that its activities were somewhat reduced during September as a result of the postponement of admission made necessary by certain changes in the staff. Those changes were as follows:

Dr. M. C. Balfour was transferred to the New York office on September 1st and was relieved by Dr. J. H. Janney.

On September 13, Miss Mary I. Mastin, supervising nurse, left Indianola to take up post-graduate work at Columbia University. Her successor, Miss Lucy Massey reported for duty on September 24.

The following is a list of those in training during September:

J. Nitzulescu, R. F. Fellow, Roumania.

M. Bustamente, R. F. Fellow, Mexico.

A. R. Balcarcel, San. Engineer, Guatemala.

H. H. Puckett, Health Officer, W. Virginia.

R. R. King, Health Officer, Arkansas.

J. W. Wallace, Health Officer, Georgia.

R. Fletcher, San. Inspector, Mississippi.

G. C. Hamilton, San. Inspector, Mississippi.

H. Harper, San. Inspector, Mississippi.

Beryl Boggs, San. Inspector, Kentucky.

M. F. Harnett, Nurse, Kentucky.

J. Kidd, Nurse, Mississippi.

P. Hargon, Nurse, Arkansas.

L. Landwehr, Nurse, Kentucky.

M. McNeil, Nurse, Mississippi.

Following is a list of visitors to the training station in the course of the month:

Mr. A. W. Fuchs, Sanitary Engineer, Mississippi State Board of Health.

Mr. Geo. Parker, Supervisor of Malaria Control Work in Mississippi.

Mr. H. A. Kroeze, State Sanitary Engineer, Mississippi.

Dr. C. C. Applewhite, Director of County Health Work in Mississippi.

Dr. O. C. Wenger, U. S. P. H. S. Venereal Disease Clinic at Hot Springs, Ark.

Dr. F. J. Underwood, State Health Officer.

Dr. L. B. Austin, Member of Mississippi State Board of Health.

Mr. N. H. Rector, Sanitary Engineer, Division of Malaira Control, State Board of Health, Mississippi.

Dr. W. Leland Mitchell, member of the Field Staff of the Rockefeller Foundation.

Dr. John Kendrick, Member of the Field Staff of the Rockefeller Foundation.

Col. G. G. Jolly, Acting Director of Public Health, Burma.

Dr. P. S. Carley, county health officer, Belzoni, Mississippi, was in the office on several occasions.

Lectures by staff members and station visitors were made to trainees on the following subjects:

The Milk Sanitation Program of a County Health Department—Fuchsh.

The Duties of a Sanitary Inspector—Janney.
Organization and Administration of State Health Department—Janney.

Venereal Disease Control—Wenger.

Necessary Statistical Records of a County Health Department—Janney.

Experience in the Belgium Congo—Dr. King, trainee, former medical missionary.

An Insight into the Social, Economic and Public Health Conditions of Burma—Col. Jolly.

SOME ADVANTAGES IN DEALING WITH THE PRESCHOOL CHILD.

The preschool child is as much a problem for our consideration as is the school child.

The five-year-old reschool of 1928 is the school child of 1929. Why wait until he is in school to deal with him? His physical defects are not as far advanced; the correction will be easier. He has no assigned duties to prevent his complete corrections and uninterrupted recovery. The economic waste is minimized. The expected achievements of this child in school are most exaggerated in the minds of the parents. They desire that he be given every advantage possible. He cannot get on in his school work handicapped by physical defects.

A preschool child's time has no computed value, but the school child's first year has a computed value. If he loses a year because of physical handicaps his earning capacity throughout his entire life has been lessened by one year of school-

ing. He has lost one year of life. We often see children in their first year at school lose much time from communicable disease which could easily have been prevented by vaccination or immunization during the preschool years. Then, too, time is lost for a tonsillectomy and adenoidectomy, circumcision, toothache, pyelitis, and many other diseases and conditions that could so easily have been detected on physical examination by the family physician, specialist, or health officer and promptly corrected before the child entered school.

An adequate preschool health program is more important and has possibilities of doing much more for the child and the school than a school program.

ANENT THE USE OF DRIED BREWERS YEAST.

We are now able to secure debittered brewers yeast which is quite tasty and this yeast is high in B Vitamins and salts which the yeast gathers from the whole grain.

The price varies from thirty to forty cents per pound and is cheaper at that price than lean meat at fifteen cents per pound. The Germans are eating more yeast and less meat, which is a great advantage from a health standpoint.

The debittered yeast may be used in soups, stews, vegetables; it gives a good flavor to corn and wheat bread where it can be used up to six or eight per cent. It is very tasty as a spread for bread made possible by moistening and then adding to butter or other fats. It blends well with fresh, canned or powdered milk. It can be sprinkled into corn meal mush, oatmeal or other cereals.

One eating an ounce of brewers yeast per day gets fifteen grams of balanced proteins containing enough of the complete chain of proteins to balance the proteins of bread.

Before a great while all of the people of Mississippi will be taking brewers yeast as a part of their daily diet. As soon as we can, we should get away from buying this in bottles, bags and barrels, but should do as the Germans do—make our own yeast at a cost which is negligible.

FELIX J. UNDERWOOD, M. D.,
State Health Officer.

Dr. May Fairhold Jones of Sanatorium, Mississippi, attended the Southern Medical Association meeting in Asheville, North Carolina on November 12-15.

Dr. W. J. C. Wiemers, of Columbus, Mississippi, is now a member of the Medical Staff at the Sanatorium in Magee.

BOOK REVIEWS

Addresses on Surgical Subjects: By Sir Berkeley Moynihan, Bart. Philadelphia, W. B. Saunders Company. 1928. 348 pp.

The author has collected his essays and put them into a small volume in a very presentable form. As all his writings this volume is also quite interesting. In his usual easy style he is holding your attention during one address-tracing the history of medicine and surgery, and connecting this with our present knowledge; whilst in the next essay he is giving a vivid description of some disease, as duodenal or stomach ulcers, pancreatitis, etc.

The first addresses are commemorative of men who have been pioneers in the great strides made by surgery. He gives an interesting study of Hunter, Harvey, Lister, and J. B. Murphy. The everlasting contributions of these men have been thoroughly brought out, and their influence on present day medicine shown.

Finally, in the last addresses he gives a complete clinical study of certain diseases in the upper abdomen—chief among which are those affecting the stomach, gall-bladder, and pancreas.

FRANK L. LORIA, M. D.

Elementary Text-Book of General Microbiology: By Ward Giltner. Philadelphia, P. Blakiston's Son & Company. 1928. 471 pp.

This is a text-book of an elementary nature intended for use in a general college course and will serve as an excellent introduction to the sciences of Bacteriology, Photo-Zoology and Mycology. It would be hard to find a book better suited to the needs of the pre-medical student since it would bridge the gap between general biology and strictly medical microscopic studies. The author covers in a readable, instructive though somewhat brief manner the whole field of microscopic organisms. Besides the fundamentals covering micro-organisms in disease there are interesting accounts of the bacteriology of milk, water, soil, sewerage and industrial processes. The author follows Bergey's Manual of Determinative Bacteriology.

S. J. LEWIS, M. D.

Hughes' Practice of Medicine, Fourteenth Edition: By R. J. E. Scott, M. A., B. C. L., M. D. Philadelphia, P. Blakiston's Son & Company. 1928. 839 pp.

This edition of a well-known synopsis of general medicine has been brought up to date without being made more bulky in the process. The author is to be congratulated in the assembling of so

much information in as clear and concise a manner as possible. Little space is given to anything other than accepted and tried methods in medicine. The charts and tables included are many and will be welcomed. Emphasis is given to essential diagnostic features. The treatment is full for this type of book and includes a good many details of nursing management and symptomatic relief as well as specific measures. The book will appeal more to the general practitioner and undergraduate.

Certain undesirable features should be mentioned. The author does not adopt the newer classification of cardio-vascular disease or of renal disease. The section on blood dyscrasias is inadequate as to diagnosis and treatment in some respects, as is the section on thyroid disease. No mention is made of the use of oil of chenopodium in the treatment of hookworm infestation. The standard treatment of malaria is not followed. The treatment of pellagra is not properly nor correctly outlined.

The reviewer feels that in spite of these obvious shortcomings the book is well worth having at hand.

S. J. LEWIS, M. D.

Surgical Diagnosis in Tabular Outline for Students and Physicians: By A. J. Cemach, M. D.; with an introd. note by John B. Deaver, M. D. Philadelphia. F. A. Davis Company. 1928. Not pagged.

After a careful review of this book, I can well understand the success that it has met in the past, and think that its translation into English with its editions will make its fourth edition even more popular. A book, so well arranged as to diagrams and illustrations, covering so many subjects in such a short and concise manner, making it a book for ready reference, cannot help but meet with success.

All subjects are classified so carefully and minutely that it would be very difficult to select any one to exemplify. The text with its references, though only intended as a desk reference book, can be recommended most highly.

EMILE BLOCH, M. D.

The Determination of Hydrogen Ions: By W. Mansfield Clark, M. A., Ph. D., 3rd Ed. Baltimore, Williams and Wilkins. 1928. 701 pp.

The majority of workers in the field of physiology have some sort of an acquaintance with this book. The first edition appeared in September, 1920, the second in September, 1922, and there have been four reprintings.

The essential facts of electrolytic dissociation are facts common to several sciences and leading in many different directions. The hydrogen-ion occupies an unique place in the esteem of students of ionization. It is a dissociation product of the great majority of compounds of physiological importance and it is the ion for which methods of determination have been best developed. Its importance and its mensurability has conspired to make it a center of interest.

Today we find new indicators or improved hydrogen electrode methods in the physiological laboratory, in the media room of the bacteriologist and so on. There is a vast field of usefulness for methods of determining the hydrogen-ion. Within the past twenty years methods of determining hydron concentration have served well in the exploration of many and diverse subjects. But the period of general exploration is drawing to a close and long ago there were begun exact studies of equilibria, or of kinetic events, in which hydrions participate. Refinement of technique, variety of method and elegance of formulation are in greater demand. Accordingly there have been added in this edition chapters or sections bearing upon each of these aspects and the old text has been almost entirely rewritten to conform to the revised presentation. As the author says, however, the requirements of a new age have far outrun the range of subject and the depth of treatment encompassed with adherence to the chosen style of presentation and consequently this enlarged edition remains more elementary in relation to the needs of today than was the first edition in relation to the needs of its period.

No one even superficially interested in the determination of hydrogen-ions can advisedly be without this book to guide him in his search for further information.

HENRY LAURENS, Ph.D.

The Opium Problem: By Charles E. Terry, M. D. and Mildred Pellens. New York, The Bureau of Social Hygiene, Inc. 1928. 1042 pp.

An extremely complete compilation of value to the physician, the public health workers, the social worker and to the legislator. The book discusses in detail the extent and development of the opium problem, the medical feature of the condition, and the various attempts to control the use of opium by international, national, state and municipal regulations. The book will be of great value to certain individuals, but for general practitioners it affords nothing except a very complete survey of the use of opium. The names of the Committee under whose direction the book has been prepared vouch for the authoritativeness of the material.

J. H. MUSSER, M. D.

International Medical Annual: New York, William Wood and Company. 1928. 574 pp.

This annual is edited by a number of English contributors. For that reason it is of considerable value to the American reader, because it reflects the ideas and the thoughts of a group of medical men who are totally separated from medical affairs in this country. The volume takes up alphabetically various diseases as well as different types of treatment, operative procedure and so on. Each article necessarily is brief, but covers fairly well the important literature of the year, for example, cancer of the stomach occupies about a page of printed matter which represents the abstract of six articles from American, German and French literature. Angina pectoris is a much longer article, nearly four pages with some eighteen references almost all of which are from American literature.

The book affords an opportunity to the physician of scanning briefly the very much abbreviated abstracts of the important contributions to medicine during the year from the viewpoint of English editors.

J. H. MUSSER, M. D.

Practical Surgery of the Abdomen: By George H. Juilly, M. D. Philadelphia, F. A. Davis Company. 1928. 20 pp.

This very practical volume dealing with the diagnosis and the operative treatment of the surgical diseases of the abdomen gives in minute and simple details the important points in surgical anatomy (surface and topographical) and the successive steps of the classical operation for the common and even rare conditions. This is accomplished by means of short, concise notations and numerous half-tone and line engravings, some in colors. To add to the practical value of this book, special emphasis has been laid upon diagnosis—sometimes sadly neglected—which, as the author justly says, “should always be as perfect as possible or at least attempted.” The vicious habit of an exploratory section to make a diagnosis should be the exception, not the rule.

Another important and very pertinent thought that prevails throughout the text is the great distinction between “operators or brilliant technicians” and “surgeons”; the former need the internist to make a diagnosis and proclaim themselves simply “intelligent maneuvers who do—and often cleverly—what they are told to do regardless of the consequences”; the latter also know the art of surgical technic which can be taught and learned; however, this should not be the sum total of a surgeon’s knowledge for besides being a good operator he should have a large clinical experience and “have honestly tried by

all means at his command and by close observation of the masters of the profession to reach the highest achievement of our art; the making of a correct diagnosis and by the exercise of sound judgment apply the treatment".

Repetitions are rather frequent but instead of being tedious and annoying as they usually are, they add smoothness to the descriptive operative details, thereby keeping the trend of thought unbroken.

A comprehensive bibliography of very recent literature—monographs, journal-articles and texts on special subjects—is an important addenda.

This work, though not of value to the medical student, is a worthy companion to the many good books on surgery and, no doubt, will soon take its place among them in the surgeon's library.

PAUL G. LACROIX, M. D.

Handbook of Clinical Gynecology and Obstetrics:

By Rae Thornton, LaVake, A. B., M. D., F. A. C. S. St. Louis, C. V. Mosby Company. 1928. 281 pp.

Though one may learn from any text, it is not often that a clear understanding is given the important facts valuable particularly to a very busily engaged practitioner who is in need of quick reference.

LaVake's *Clinical Gynecology and Obstetrics* contains in a concrete clear manner the everyday important spots embraced in these two allied subjects.

On the subject of toxemia pregnancy, Dr. LaVake apologizes for the constant harping concerning focal infections. I should think that no matter how often we repeat, enough emphasis can be made of the importance of eradication of focal infections.

If I may be permitted I would suggest to the author that in a repeated edition he might explain some eponymic terms for the benefit of those who are not familiar with them.

ADOLPH JACOBS, M. D.

International Clinics: September, 1928. Philadelphia. J. B. Lippincott Company. 1928. 310 pp.

This volume is up to the usual standard of good medical literature. The number contains several articles of great importance to the physician. The articles on Endocrinology, Liver and Gall-Bladder disease, and Mongolian Idiocy are but a few excellent examples of a book replete with valuable data. It cannot be commended too highly.

I. L. ROBBINS, M. D.

Medical Formulary: By William E. Fitch, M. D. Philadelphia, F. A. Davis Company. 1928. pp. 501.

A prescription for everything, and everything prescribed for in 350 pages of small size.

J. H. MUSSER, M. D.

Recent Advances in Diseases of Children: By W. J. Pearson, D. S. O., M. C., D. M., F. R. C. P. and W. G. Wyllie, M. D., M. R. C. P. Philadelphia, P. Blakiston's Son's Company. 1928. 593 pp.

The authors present the ailments of the young in the form and manner in which they are met in every-day practice. The aim of the work is to formulate principles for solving problems of disease rather than merely to collect and record the work of others. The book includes many of the recent advances in scientific knowledge that have a bearing on the clinical study of disease in childhood.

Diseases and their symptoms are grouped according to regional anatomy. In the chapter on Clinical Methods is a workable classification of the two main abnormal types of children, viz., the lymphatic or alkaline type and the hypercalcic or acid type.

The work suffers from the therapeutic view point. In general, it is hard to see what need this book fills either for the general practitioner or the specialist in pediatrics.

L. VON MEYSENBUG, M. D.

Calcium Therapy: By John Audle, M. D. Privately printed. 1928. pp. 420.

A book so unscientific, so nonsensical and so illogical that it does not merit space in any medical library.

J. H. MUSSER, M. D.

PUBLICATIONS RECEIVED.

Paul B. Hoeber, New York: *Clinical Examination of the Nervous System*, by T. Grainger Stewart, M. D., F. R. C. P.

Lea & Febiger, Philadelphia: *Modern Medicine, General Index*, Osler, edited by Thomas McCrae, M. D.

Williams & Wilkins Company, Baltimore: *A History of Pathology*, by Esmond R. Long, Ph. D., M. D.

D. Appleton and Company, New York and London: *Urology*, by Edward L. Keyes, M. D., Ph. D., F. A. C. S.

William Wood & Company, New York: *Medical Record Visiting List or Physicians' Diary* for 1929.

Tulane University: *An Outline of Gynecology for Students*, by C. Jeff Miller, M. D., F. A. C. S.

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TOXEMIAS OF PREGNANCY*

JOHN OSBORN POLAK, M. D.,

BROOKLYN.

When we consider that 29 per cent of our stillbirths and macerates are the result of toxemia and that 27 per cent or more of the women who die during pregnancy or in childbed die from toxemia, convulsions or their sequella; it is evident that there is no uniform teaching on this subject, and that too much surgery is being done on a medically sick patient. It is, therefore, my purpose to consider the known clinical facts in hyperemesis, pre-eclampsia in contra distinction to pregnancy occurring in the nephritic woman and eclampsia with its convulsive explosions, in order that the practitioner may better understand the present status of this baffling subject. It may be said that pregnancy is the great efficiency test of the workings of the maternal organism; for the fetus and the uterus in their growth call for such adaptive changes in all the important organs of the mother, that unless there is perfect and harmonious efficiency on the part of all of the organs called upon in the development, the load cannot be carried. The pituitary, thyroid and parathyroids become activated, ovulation ceases and more work is demanded by the liver, kidneys, lungs and heart. Therefore, it is easy to deduce that incompetence on the part of any organ must shift the load to the others with resulting defect in the body metabolism.

The toxemias of pregnancy present the most striking examples of maternal maladaptation to the needs of the fetus and fetal growth. The very fact that nausea and vomiting of greater or less degree occur in more than 50 per cent of pregnant women may be considered as an inevitable evidence that there is a temporary disturbance of the physiologic balance. This has been accounted for by the relative carbohydrate deficiency due to the unexpected demand for glycogen on the part of the fetus, and to the actual deficiency occasioned by the nausea, vomiting and the consequent lessened intake.

With these facts demonstrated it takes but little imagination to appreciate that by lack of care, marital indiscretions, improper hygiene and dietetics, this vomiting which is so common in the early months may be aggravated to a degree which will take large quantities of fluid out of the body tissues resulting in dehydration. The actual fluid loss from emesis in patients who have had no fluid intake by os, varies between 1000 and 2000 cc. per diem. Such a fluid loss repeated day after day, quickly dehydrates the woman and produces the clinical picture of dehydration which is so familiar to you all. The rapid emaciation, the dry coated tongue, dry cracked lips, increasing pulse rate, diminished urinary output and lowered blood pressure. Rapid emaciation is farther augmented by starvation, and we find the following clinical phenomena result: The blood pressure is lowered, the pulse gradually increases in rapidity, the urinary output is diminished;

*Read before the Orleans Parish Medical Society, February 15, 1928.

while there is a concentration of the body fluids and an increase in the carbohydrate deficiency as more and more glycogen is abstracted from the liver, in order to carry on life. Together with these signs the leukocyte count is usually diminished and an icteric hue tinges the conjunctiva.

It may, therefore, be deduced that the pathology found in the liver and kidneys is a result of a retention of toxic products consequent upon the dehydration and the glycogen deficiency. Certainly the final pathology in the liver is identical with that found in patients dying from starvation. This deduction is supported by the fact of the rapid subsidence of hepatic and renal symptoms when the uterus is emptied or when diuresis is produced.

Mundell studied the blood in a series of 52 normal pregnant women at the different months of pregnancy beginning with the second and ending with the ninth. This study shows conclusively that there is very little actual change in the blood chemistry except in the nonprotein nitrogen and uric acid contents. The normal blood seldom contains more than 3 mg. of uric acid to 100 cubic cc; while the nonprotein nitrogen rarely exceeds 30 mg. In excessive vomiting dehydration and rapid emaciation, the uric acid reaction is always slightly increased. Another significant point is, that the blood sugar maintains its normal ratio in the pregnant woman until about the end of the third month or about the time when placentation takes place, at which period we note a sharp drop in the sugar content; while toward the end of the fourth month and the beginning of the fifth the ratio seems to be re-established on a normal basis. This points to the disturbance in the carbohydrate fat ratio as the basic factor in this disease. It is on the acceptance of these facts that the adoption of the suggestions of Hardne and Titus have proved their clinical value. The intravenous use of large quantities of a properly prepared glucose solution replaces the sugar deficiency and

allows the proper functioning of the liver to carry on.

Roger, Davis and Whipple have shown that starved animals are especially susceptible to liver injury; while by increasing the carbohydrate intake the liver resistance is increased.

At the research laboratory of the University of Minnesota, liver tolerance has been most exhaustively studied. It has been found that it is possible to remove four of the seven lobes of a dog's liver, and by giving such an animal daily injections of a glucose solution his health will be in no way impaired. On the other hand, if no glucose is given, his susceptibility to injury, dietary indiscretions or exertion are very manifest.

In mild cases of early vomiting the patient should be impressed with the necessity of revamping her mode of life; her dietetics and her hygiene. Perhaps the most important of these is her sex hygiene—it is imperative that marital abstinence *be insisted upon*; that malpositions of the *pelvic organs be corrected*; that the constipation be relieved—and in addition to these fundamentals, that the amount of carbohydrate as well as fluid intake be increased to the point of greatest tolerance. The copious ingestion of water should be encouraged—usually in the form of a bland or alkaline water (Poland, Kalax or Celestin vichy.) *at least two quarts of water daily must be taken.* To meet the carbohydrate deficiency we insist upon an increase intake of carbohydrates in the form of cereals, fruit, fruit juices with sugar, puddings, chocolate or candy.

These general principles should be supplemented by rest in bed after meals, and the internal administration of small doses of thyroid extract. Should the vomiting persist and the patient lose weight, rest in bed *with absolute isolation is to be insisted on*; and the fluid loss made up by the hypodermoclysis, enteroclysis and the intravenous injection of glucose solutions

amounting to 1000 cc. daily of 10 per cent solution until diuresis is produced.

In 1924 and 1925, Thalhimer extended his treatment of post-operative nondiabetic acidosis to include cases of toxic vomiting of pregnancy. Briefly, the method consisted in the intravenous administration of about 1000 cc. of warm 10 per cent glucose solution at the rate of from 200 to 300 cc. an hour. In addition, fifteen minutes after the injection has been begun, 10 insulin units are given hypodermically. More insulin is given at intervals of an hour, until 30 units to the thousand cubic centimeters of glucose solution has been given.

Although Thalhimer gave due credit to Titus, Hoffman and Givens, and to Duncan and Harding, who had administered glucose alone in cases of this sort, his method of combining insulin with glucose has not given better results than did glucose alone. If this treatment is successful; the pulse will become slower and fuller, the blood pressure will rise, the urinary output will be increased, and the vomiting will diminish or cease altogether.

When glucose alone or in combination with insulin fails to produce this improvement, I have employed transfusions of 300 cc. human blood by the direct method to which is added 500 cc. of physiologic sodium chloride solution. The success of these procedures has been so satisfactory that I have not had to empty the uterus for vomiting in a period of nearly seven years. It must, however, be impressed on the attendant that if, under this plan of treatment properly carried out for a period of a week, diuresis is not produced and the vomiting continues, the uterus should be emptied. As soon as vomiting ceases, the patient should be given solid food with a high carbohydrate content. Should no improvement take place after transfusion, the uterus should be emptied under morphine-scopolamine narcosis.

PRE-ECLAMPTIC TOXEMIAS.

The situation in pre-eclamptic toxemias is not the same as in pernicious vomiting, except that they both occur in pregnant women, and that in fatal cases the liver is always seriously involved.

In the study by Herrick at the Sloan Hospital, where every toxemia of the latter months is studied by the internist as well as by the biochemist and the obstetrician, they have come to the conclusion that the woman who develops a pre-eclamptic toxemia or an eclampsia is the woman who starts on her pregnancy with defective excretories or an unbalanced endocrine system. It is the result of a dysfunction and improper correlation of the eliminative system and endocrine control in the individual woman. My own study tends to confirm this theory, which has a definite clinical backing. Therefore, the real clinical questions in toxemia are what physical type of woman breaks down under the strain of pregnancy. What pathological changes does she show before and during pregnancy, and what pathology remains after so-called recovery? Women with persistent systolic pressures of 150 and diastolic pressures above 100 at the beginning of pregnancy are not likely to go through pregnancy successfully. A pressure of 140 may be considered hypertension in pregnancy, for the normal pregnant woman has a characteristic arterial hypotension. The late toxemias of pregnancy represent failure of a defective maternal cardiovascular renal system to adapt itself to the strain of child bearing. This is subsequently shown by cardiovascular renal changes evidenced by albuminuria, nitrogen (non-protein) retention.

I feel certain that eclampsia is not due to any specialized toxin or toxins elaborated by the growing fetus or its appendages combined with the failure on the part of the mother to develop an antitoxin, but rather to the overload suddenly placed on the maternal organism; for the pregnant woman shows a condition of rapid growth and a rapid increase in weight superimposed on

an adult organism that has ceased to grow. It is only natural, therefore, that metabolic strains are set up in the mother to meet the demands of the fetus. This results in a disturbance of the metabolic balance, which in turn affects hepatic and kidney function; for it is well known that eclamptic disturbances which characterize the latter half of pregnancy occur at a period of rapid fetal growth which needs an increased quantity of glucose to maintain it. This in a way confirms the low sugar content of the blood in pregnant women, as well as the increase in the uric acid content of the latter weeks.

Repeated studies of the blood chemistry in pre-eclamptic toxemias show nothing that is significant or characteristic except that when the blood is found to have a decided nitrogen retention, either in the form of nonprotein nitrogen or in uric acid—it may be assumed that nephritis is the predominating factor in the particular toxemia.

I had expected to find that the basal metabolism rate would be materially changed in the pregnant woman, and be available as a diagnostic sign of some value in the pre-eclamptic toxemias; but studies of the readings at different periods of pregnancy has proved that the woman who is functionally fully equipped and healthy in the early months has practically no change in her metabolic readings, and that there is slight though definite elevation of the basal rate in the latter half, returning to the normal after a few days of the puerperium.

In the pre-eclamptic state the readings are slightly higher than normal; this, however, is demonstrated only in the severe conditions. There is little or no difference in the patients with and without a pre-existing kidney lesion, so that antepartum differentiation cannot be made by this test. However, in the nephritic type the reading is apt to remain higher for some time after delivery; which in a way coincides with the blood pressure readings; therefore it may be concluded that neither blood chemistry nor metabolic rate throws much

light on the etiology or prognosis. Furthermore, the clinical manifestations, those that may observe by any keen practitioner, are of greater significance.

DIAGNOSIS.

The pre-eclamptic toxemias are usually considered under :

1. The hepatic type, which is commonly of sudden development with a nephrosis, as the kidney lesion without any pre-existing history of renal disease.

2. The renal type, in which nephritis is a contributing etiologic factor. The clinical distinction between these two types in antepartum toxemia is difficult to make, though in the former there is a previous history of renal disease, while in the latter there is always some clinical evidence of pre-existing kidney lesion. However, after the labor is terminated, the hepatic type is shown by the relatively quick return of the blood pressure and kidney function to normal; while in the renal type it may take months to clear the urine of albumin and casts, and the blood pressure never ranges below 140.

The earliest evidences of toxemia are :

1. A rise in the systolic blood pressure.
2. The appearance of an albuminuria coincident with or appearing soon after the occurrence of hypertension.
3. Diminished urinary output — the quantity of urine eliminated falling below 1000 cc.
4. An increase in the body weight beyond the normal 25 pounds (11 kg.).
5. The appearance of edema in the face, hands and feet.
6. Constipation associated with "heart-burn" and epigastric distress.
7. Frontal headache.
8. Eye symptoms, ranging from spots before the eyes to amaurosis.

BLOOD PRESSURE.

The pregnant woman whose kidneys are healthy at the time of conception carries a hypotension seldom rising above 120. Progressive readings above this point demand watching. Increasing hypertension during the course of pregnancy at any age points toward the onset of toxic symptoms. Rise in pressure usually precedes the appearance of albumin by days or weeks, unless there is a pre-existing kidney lesion. Coincident with the occurrence of albumin there may be a diminution in the urinary output with or without increased concentration.

WEIGHT.

The pregnant woman normally increases her weight by about 20 to 25 pounds (9 to 11 kg.) in the course of pregnancy. The greater part of this increase takes place during the last four months. Rapid increase is always dangerous—less so when associated with edema, for edema seems to be a salutary and conservative process which takes the toxins out of the blood and deposits them in the tissues. Eclamptic explosions are less liable to occur when there is edema, especially when the edema forms slowly, than when it is of rapid appearance.

HEADACHES.

Frontal headache is one of the later manifestations of toxemia, sometimes the earliest forerunner of a convulsion. Headaches should always be inquired into. They are more common in the nephritic type. Gastric acidity with pain or burning of the epigastrium is another evidence of toxemia which gives warning of impending danger.

EYE.

Eye symptoms are common in the nephritic type, the fundal and retinal changes having the same appearance as are found in glomerular nephritis. They are usually absent in the fulminating type except for increased tortuosity, high arterial light reflex and increased spasticity. Occasionally exudate may be present.

The treatment of the pre-eclamptic state and of eclampsia is essentially medical. The obstetric problem comes in for consideration only when labor is established by the convulsive seizures. Notwithstanding the fact that convulsions cease in 52 per cent of the cases when the uterus is empty, we are not justified by the results in any extensive series of clinical observations in making delivery the first consideration in view of the poor surgical risk. Naturally, the treatment of the latter month toxemias resolves itself into:

1. Prevention. One of the greatest strides in preventive medicine has been the antepartum care given to the pregnant woman. It has resulted, in many clinics, in the passing of eclampsia.
2. The control of the convulsion.
3. The management of labor in the presence of convulsions when labor has started.

The pre-eclamptic toxic patient should be in bed. She should have her nitrogenous intake limited to just enough to sustain life; milk and fruit juices with sugar make up the foundation of her diet. Stimulation of her emunctories should be done by producing diuresis. This may be done with water and the intravenous use of glucose solutions, except in the cases of edema, when the intake of fluids should be restricted and diuresis stimulated by lumbar cupping, ammonium chloride and calcium chloride. The skin must always be kept active. This effect may be secured by having the woman rest between blankets or with the electric baker. To favor surface relaxation the nitrates will add to its efficiency. When no improvement is shown, pregnancy must be terminated by the existing obstetric condition, always keeping in mind that the toxic patient is a poor surgical risk, bearing anesthesia poorly, liable to shock, and more susceptible to infection than her better equipped sister. Haste and trauma must be avoided. In the presence of convulsions the indications are never surgical. With the appearance

of the first convulsion, the woman should be given (hypodermically) one-fourth grain (16 mg.) of morphine sulphate; placed in bed in the Trendelenburg posture, and turned on the side to allow the mucus to drool from the mouth. The tongue must be protected by a "gag"; the bladder is emptied by catheterization. If the pressure is 150 or more, 1000 cc. of blood should be withdrawn. This may be replaced by 500 cc. of a 10 per cent glucose solution. The morphine is repeated in an hour—and nothing else is done.

Unless the convulsions recur and the supervening coma increases to a degree that the patient remains comatose between convulsions, this condition is an indication for the intravenous use of magnesium sulphate in quantities of 100 cc. of a 25 per cent solution which has had a most kindly effect, diminishing the cerebral edema and controlling the occurrence of subsequent convulsions.

The management of labor in the presence of eclamptic convulsions is based on the three principles of: (1) Avoiding trauma; (2) preventing infection, and (3) diminishing the shock—for the eclamptic patient is a very poor surgical risk.

My plan has been to disregard the labor until complete dilatation of the cervix is obtained when, if the head is engaged and at the spines, delivery may be expedited by the use of low forceps under light oxygen-ether narcosis added to the morphin analgesia.

Section has been limited to those cases in which there was a definite obstetric indication and not employed as a routine for rapid delivery. My experience shows that prevention is the keynote of success; the toxic patient needs active treatment with the first appearance of hypertension; convulsions may be prevented by induction of labor when medical means fail to reduce tension and produce diuresis, and the treatment of eclampsia is essentially medical, and surgical delivery has only a limited field.

DISCUSSION.

Dr. George Gray Ward (New York City): I do not rise to discuss "The Toxemias of Pregnancy", so fully and interestingly covered by Dr. Polak, but to voice my appreciation and great pleasure in having had the privilege of listening to his discourse on this complicated subject. Those who have listened to him tonight must have been impressed, as I was, with the fact that in obstetrical work systematic training and a vast amount of knowledge are required to do the best for this type of patient.

I thank Dr. Polak.

Dr. E. L. King: Particularly appropriate at this time is that very trite remark with which you are all familiar, that "the subject has been so fully covered that I can add but little to what has already been said."

In the work that we have been doing at Charity Hospital where we get a great many of these toxemias, we have been working along the same general lines as outlined by Dr. Polak and our results have been somewhat conformable to his. We have long reached the conclusion, that particularly in eclampsia, there is no surgical indication, but that it is a medical condition.

I employ Stroganoff's method which consists essentially in the use of morphin and chloral, and in controlling the convulsions with chloroform; this as a rule is not followed by others because chloroform damages the liver and there is already liver damage present. The use of oxygen and gas certainly seems to be preferred. Dr. Polak did not mention ether. Personally I do not believe that ether would be indicated, particularly in view of a disastrous experience I had recently. Because she was having convulsions my patient was given ether. Thirty-six hours later she died of edema of the lungs. Now she might have developed this condition afterwards without the ether, but under the circumstances it was hard to dissociate the ether from the subsequent acute edema of the lungs, the cause of death.

I can only second Dr. Polak's statement that after a patient recovers from a convulsion she should be delivered. Stroganoff has reported some cases where he carried them over for weeks after the convulsions had been controlled and they have gone on through to normal delivery. But the toxemia persists, the cause is there and we are subjecting that patient, first to the recurrence of eclampsia, second to the risk of permanent renal damage, and third we are running the hazard of intrauterine death of her baby from toxemia, so there is little to gain by carrying on this pregnancy, but a great deal to lose.

Another point about toxemias in general, brought out by several studies, is that a considerable amount of renal damage often attaches to the woman who is purely a pre-eclamptic, as well as to the eclamptic. In fact, when pre-eclampsies are allowed to drag along because their condition has improved slightly, just enough to make us feel a little easy and we carry these pregnancies on for weeks, it has been found on investigation a year or two later, that these patients have a pretty high percentage of permanent renal damage. The percentage in this class is much higher than where the pregnancy is interrupted promptly; it is still higher than in cases of frank eclampsia, but even in cases of frank eclampsia it is found renal damage is much more frequent than we formerly thought. I believe that in pre-eclamptic toxemia if we do not get prompt and marked improvement there is nothing to be gained by carrying on the pregnancy. In nephritic toxemia we can be more conservative because we are not running so great a risk of eclampsia. The treatment of eclampsia is medical first and then emptying the uterus 24 to 36 hours after the convulsion is controlled.

Dr. John O. Polak (Closing): The point brought out by Dr. King is something that should be emphasized. We had always supposed that in cases of pre-eclampsia that the kidney lesion was a nephrosis and that there was little or no permanent kidney damage. In following up these cases (as we are all trying to follow them up), it is rather remarkable to find that after two and three years so many of them have defective kidneys. While they are not liable to to have a recurrence of the eclampsia should they again become pregnant, yet the kidney function is always somewhat impaired if we let them carry the pregnancy along in the interest of the child. We have to do this sort of thing, yet I warn you again trying to carry these patients too far along with a pre-eclamptic toxemia. Another thing, there is no surgical treatment to eclampsia until after the convulsion has been absolutely controlled and the patient is well.

Now, with regard to anesthetics. They stand all sorts of anesthetics badly and this is the place for local, spinal, and morphin.

It does not take a man very long to learn how to use these methods; they are safe and do not change the carbon dioxide combining point nor sugar content of the blood, and all anesthetics have that effect when given by inhalation. Chloroform is the most dangerous, gas perhaps the least dangerous, but gas is not safe in these cases.

ACUTE CONDITIONS IN THE LOWER ABDOMEN OF THE FEMALE.*

W. W. CHIPMAN,

MONTREAL.

1. The genital tract in the female is a hollow cylinder, bifurcate above, which communicates directly between the skin surface and the peritoneal cavity. A direct channel, or avenue of communication between a contaminated skin surface and this mesothelial space!—Victor Bonny.

And this genital tract is subject to many vicissitudes. There are the traumata of menstruation, of child-birth, and abortion; and the dangers associate with venereal disease. It is an imperfect world. Hence in the female the frequency of acute infections of the lower abdomen.

2. The peritoneal cavity is one of the three large enclosed chambers of the body—it is the largest of the three, the largest lymphatic space. Its absorptive surface is immense, compared either with the pleura or the sub-dural space. Hence the danger of an acute infection of this large space. The peritoneal cavity—an organismal Valhalla—a perfect incubation chamber.

These acute conditions are sometimes grouped together under the term, "The Acute Abdomen," "The Emergency Abdomen." The point of the emergency concerns both the patient and the surgeon, and any given individual has only one abdomen. To open or not to open—that is the question, a decision often-times of very grave importance.

I need not tell you that the opening of the abdomen should never be lightly or carelessly undertaken. I object to the term of "giving the patient the benefit of an exploratory." For if too often done this may be interpreted, "condemning the patient to an added injury." In surgery we must remember the three "Cs"—caution, care, as well as cutting. You also will agree that

*Read before the Orleans Parish Medical Society, February 15, 1928.

before any abdominal operation is undertaken, a vaginal examination, a rectal examination, or both, should invariably be made. Plea for mid-line incision in interval cases.

In general terms, these acute conditions may be grouped as follows:

- (1) Hemorrhage, a concealed hemorrhage.
- (2) Acute infections, usually of the uterus, the Fallopian tubes or the appendix.
- (3) Perforation of the bowel or other hollow viscus—perforation or rupture.
- (4) An acute bowel obstruction.
- (5) Strangulation of any organ or neoplasm.
- (6) The passage of an ureteral stone.
- (7) A uterine abortion, spasmodic dysmenorrhea, or even a bladder retention.

For the gynecologist the most common of these are, a ruptured ectopic pregnancy, an acute appendicitis, or salpingitis, a uterine infection, strangulation, an ovarian cyst or uterine fibroid.

Speaking in a general way for all these conditions, some of them are at once recognizable—he who runs may read; while others require a most painstaking differentiation.

May I first make two pleas of a preliminary character. The first concerns the wisdom of a careful case-history, for in many of these conditions the previous history, or the story of the onset, may afford the clue. Sir James Mackenzie pointed out that in difficult cases, the diagnosis frequently depends more upon an exact history than even upon a careful, exact examination. My second plea is always to pass a catheter, and to examine the resulting urine.

I shall now discuss in a general way the various signs and symptoms of these acute conditions.

Pain is always the outstanding symptom.—It may well be defined as Nature's exposition to an injury, and its function is a protective one. La Rochefoucauld has told us that pain is the greatest liar in the world, but it is wise not always to believe this. At times it is a liar, and so for the matter of that are all men, and a few women, but I believe it is wise to take the following advice. "Never open the abdomen for pain only," for pain only and with no accompanying signs or symptoms.

The most important sign, perhaps, is the face—the abdominal face—the facial expression, and this never lies. So often it is the anxious peritoneal face, apprehensive. In hemorrhage it is pallid, often waxy, and the muco-cutaneous line of the lip is unduly sharp and pronounced. There is the grey ashen face of shock, and the flushed, or cyanotic face, of a severe toxemia. The severity of the lesion can often in this way be immediately adjudged.

And there is the attitude of the patient, her decubitis, and her mobility.

If the lesion be acute, and intra-peritoneal, the patient lies invariably upon her back, and with her knees flexed. Any movement is a torture. On the other hand, if the patient moves readily, and turns easily on her side, there is no grave lesion within the abdomen. I have often found this test of asking the patient to turn over on her side of great service.

So far you will observe I have not mentioned either the temperature or the pulse-rate. I shall refer to them later in their special place.

Let us now consider the three commonest of these lower abdominal conditions. These are, you remember, hemorrhage, acute infection of appendix, or Fallopian tube, and a strangulation or thrombosis of a pelvic organ or neoplasm.

(1) The first of these is hemorrhage. The common site, of course, is a ruptured tubal pregnancy. A severe hemorrhage may arise, however, from other situations;

for example, from a ruptured Graefian follicle. (Three years ago, Primrose, of Toronto, reported six such cases. I have met one in my own practice and there was a large loss of blood.) Again, a varicocele may rupture, and a uterus ruptured during labour, or perforated even by a sound or a curette, may lead to a severe intra-peritoneal hemorrhage. The history here is all important.

But the usual cases are the ectopics. As you know, the history of the pregnancy, the amenorrhea is often indefinite. Rupture usually between the 7th and the 12th weeks, and this rupture may be large or small. The dangerous situations are the isthmus and the cornu of the uterus. If large, the hemorrhage is usually severe, the cataclysmic case with the pallor, sub-normal temperature, the rapid and thready pulse, air-hunger, cold and clammy extremities. The abdomen is tumid and tender, frequently tympanitic, for the bowel floats (blood has a high specific gravity.) The pouch of Douglas may be full and depressed, and a feeling of crepitation as the finger breaks the blood-clot may be present. There is frequently the history of the dagger-like thrust of pain, with immediate faintness or collapse. A uterine trickle of blood is often manifest, together with rectal tenesmus, and some bladder strangury. In these severe cases, the diagnosis is easy, and does not require the taking of a hemoglobin index. Open the abdomen at once and give a venous transfusion—citrate blood or a glucose saline.

It is well to remember that if such a case survive and be not seen till the 4th or 5th day the patient may present all the signs and symptoms of a widespread peritonitis, namely, fever, a rapid pulse, a distended abdomen with paralytic ileus, a regurgitant vomiting with a marked leukocytosis—the picture of late bowel obstruction.

In a so-called chronic case—the “leakers”—while the diagnosis is less urgent, it is sometimes more difficult to make.

There is the history—repeated attacks of sharp, lancinating pain in the lower abdomen, an interval of 24, 48 hours, or even some days between them; slight uterine hemorrhage, no marked fever, or great disturbance of pulse-rate; a lateral mass on one or other side of the uterus, increasing rapidly in size. Mark such a case.

If a decidual cast is shed from the uterus—this occurs in only about 20 per cent of the cases—the diagnosis is clear.

There is in these cases a degree of anemia; there is often a marked leukocytosis (De Quervain contends that a leukocytosis of twenty-thousand, where signs are slight, points to a hemorrhage rather than to an inflammation.)

A hemoglobin index is of small value, you remember. Two years ago the hope was expressed that a low and falling index would reveal a concealed hemorrhage. Unfortunately this is not so.

We rely in these cases upon the history—the recurrent attacks of pain—the uterine bleeding and mass, at first lateral to the uterus, which increases rapidly in size.

It is always well to bear in mind, that—if in doubt, an exploratory colpotomy is the indication, and at once settles the matter. If blood is found, open the abdomen from above and remove the tubal sac.

(2) The second common condition is an acute infection—an infection of either the vermiform appendix, or the Fallopian tube. The distinction between these two infections is an all-important one to make, for an inflamed appendix should be at once removed, certainly within the first 24 hours, while to open the abdomen for an acute salpingitis is nothing short of disaster.

The inflamed appendix we all know, with its more or less definite syndrome, outlined first by Reginald Fitz, and its surgical treatment indicated by McBurney of New York. Professor Wilkie of Edinburgh emphasizes an important pathological and clinical distinction. He says “there are two

main types of acute appendicitis." (a) the one infective, an organismal invasion of the lymphoid tissue, the inflammatory type. Here there is pain, more or less continuous, but not severe, fever, increased pulse-rate, localized tenderness and a marked leukocytosis; and (b) the obstructive type, fecal concretions, often present, blocking of the circulation, and sudden gangrene, and perforation. Here the pain is intense and spasmodic, the fever is slight, the pulse is often rapid, the abdominal facies, and no great increase in leukocyte count."

These are his two main divisions, and I think they are well founded.

The common infection of the Fallopian tube we are all familiar with. It is really a mixed infection, an acute exacerbation of a chronic condition. The chronic infection is a gonorrhoeal one, rarely tuberculosis, and the acute maleficent synurgism is frequently due to the colon bacillus.

It is the distinction between these two acute conditions, the one of the vermiform appendix, and the other of the Fallopian tube, that sometimes taxes to the utmost our clinical acumen.

How shall we proceed to such a distinction? It is, I admit, an old story, but one that in our daily practice is ever new.

In a general way it may be said that in acute salpingitis the patient does not appear so ill; the temperature is often high, it is true, usually higher than an appendicitis, but the pulse-rate is not correspondingly disturbed. The face is often flushed, but not to the same degree anxious or apprehensive. The function is not so greatly disturbed, nausea and vomiting are not a feature, though there may be considerable distention. Abdominal tenderness and rigidity more diffuse and wide-spread.

All this in a general way, the general rule, if you like, where there are bound to be exceptions.

The history of the case, the history of an onset, or of previous attacks, a previous

complicated puerperium, a one-child sterility, with depraved menstrual habit, may afford a clue.

And then in our examination we always look for signs of a gonorrhoeal infection. As I have said, it is an imperfect world. First, the signs at the vulva-vaginal outlet; the chronic urethritis, with the pouting and edematous tubulus of Skene. The gonorrhoeica maculae, these sinister patches at the opening of the Bartholinian duct;—these are all signs that a gonorrhoeal infection has passed that way.

If the infection be a Noeggerath's infection—a chronic gleet in the male—there will only be the chronic cervical catarrh, and the immobility of the uterus—the uterus fixed in starch, as it were, and often with no definite appendage mass. Yet, at this time, the appendages are slightly enlarged, and very sensitive; and the mere movement of the cervix uteri elicits severe pain.

With such a finding, the diagnosis is, an acute exacerbation of a chronic salpingitis, with a spreading peritonitis, and the indication is—Above All Things, Do Not Operate.

The situation in these cases was well summed up some years ago by one of our able Southern surgeons, when he said: "In a gonorrhoeal salpingitis, never operate in the acute stage; wait till the cold stage, and clear them out." Never operate till you are compelled.

In contradistinction to this clinical picture I think it wise for us to keep in mind a typical attack of appendicitis. The history helps us here. There may have been previous attacks, but—

The pain is first felt about the umbilicus or in the epigastric region; but soon determines itself in the right lower quadrant.

There is anorexia, or nausea, or even vomiting. There is tenderness over McBurney's point, which we remember is the base of the mesentery of the appendix—a lymphangitis.

Some muscular spasm or rigidity of the right rectus or oblique muscles.

Fever or quickened pulse-rate, often not specially pronounced.

A moderate leukocytosis—ten to twelve thousand, with polymorphs predominating. If the inflamed appendix be near the brim of the pelvis, a vaginal or a rectal examination shows a marked tenderness in the neighborhood of the right sacro-iliac joint.

Such is a typical clinical picture of a catarrhal appendicitis. We can see at once how it differs from an acute salpingitis. In doubt between the two—watch and wait—hour by hour—not day by day.

(3) A thrombosis in organ or neoplasm. Here the lesion is a definite thrombosis, or a twist in a pedicle. The common neoplasms that suffer this pathology are ovarian cysts of medium size, or a fibromyomata, of the uterus, pediculated or intramural.

Frequently the patient has been aware of the presence of the neoplasm.

The pain is severe and colic-like, short in duration, and the tenderness is at first localised to the tumor-surface; there is small disturbance of temperature or pulse-rate.

A careful examination discovers the neoplasm. If the thrombosis be extensive, or the strangulation severe, and the patient be seen late, there are all the signs of a super-added peritonitis, the result of a colon infection.

These three conditions mark the common acute lesions of the lower abdomen.

May I add here a word of warning in respect of pneumonia. A pneumococcic infection, which may spread below the diaphragm, and simulate even an appendicitis.

My warning consists in this—a careful history of the onset. If a rigor has occurred, a chill, it is probably not appendicitis. In a series of 85 cases of appendicitis, in a service in the Royal Victorian Hospital, a chill was recorded but three times; so, if

there is a chill at the onset, watch the alae nasi (count the respirations), think of pneumonia, and make a leukocyte count. If the leukocyte be over 15,000 in the first 24 hours, it is likely to be pneumonia and not appendicitis.

Pneumococcic peritonitis: first menstruation; history must help us here and a widespread lesion from the first—and drainage was in two cases the salvation.

A word or two concerning bowel obstruction—an obstruction of the lower bowel. I need not remind you to examine all hernial orifices. An intussusception is common only in the young or adolescent, and soon gives rise to a typical ilio-caecal tumor, and the characteristic bloody mucus bowel discharge.

A volvulus occurs rather in the old, a rare left-sided lesion, which can usually be felt by bi-manual examination.

These obstruction-cases occasion colic, with quiet intervals; ladder-pattern constipation of course, and later, the anti-peristalsis may result in vomiting.

A diverticulitis occurs usually in the pelvic or iliac colon, and a diarrhea is a frequent concomitant—diarrhea and fever.

A stone in the ureter, or in the pelvis of the kidney may cause abdominal distention and vomiting, and not a few abdomens have been mistakenly violated.

The onset of the pain, its distribution unto the urethra or down the leg, a frequent micturition, and blood in the urine may possibly identify it. If in doubt, a roentgenogram picture should at once be taken.

A good surgeon must first be a good physician. A mind broadly trained and the hand narrowly.

The function of the good surgeon is to diminish surgery in the world today.

DISCUSSION.

Dr. Hermann Boldt (New York City): Dr. Chipman, in his inimitable and learned language has fully covered his subject and it is indeed with great pleasure that I have listened to his remarks.

There are a few points to which I would like to call attention. One is in connection with tubal gestation, or tubal rupture, and that is the sensitiveness and tenderness experienced by the patient upon moving the vaginal portion of the cervix anteriorly and posteriorly. Since my attention was called before operations many years ago to pain in that location when doing that, I have not found a single instance where it was present without tubal pregnancy, other symptoms of faulty impregnation also being present.

The next feature which I lay emphasis upon is care to avoid operating in instances of acute salpingitis. This lesson I learned more than forty years ago, having operated on a patient and lost her. Since that time I have stopped it and I can only reiterate what Professor Chipman has said: "Be careful—do not operate on these cases."

Another feature I would stress in tubal disease is, that is if the patients will hold out long enough on the rest plan of treatment, providing the infection is due to the gonococcus, the majority will get well. But we must remember that there are women who cannot undergo that long, tedious waiting. They have to earn a livelihood for themselves and in that class of patient an exception should be made if they do not get better, or if there is constant recurrence. But I do say: never operate during the acute stage—always wait for subsidence.

These are the features to which I would like to call attention. I thank you.

Dr. C. Jeff Miller (New Orleans): The whole point of Dr. Chipman's paper is that diagnosis is a matter of the clinical picture rather than of laboratory findings. The tendency today is to make them the basis of diagnosis, and it is a dangerous and a wrong tendency. The patient is more important than the blood count, the history, properly interpreted, plus the physical examination, is the key to the condition, and the emphasis should be put where it belongs.

I am particularly interested in Dr. Chipman's remarks on acute salpingitis, for they echo my own opinion, an opinion upon which my entire practice in this disease has been based since Frank Simpson, twenty years ago, delivered his memorable address on the treatment of pelvic infections. These patients ought to be let alone, they do not die under expectant treatment, though many do die if immediate surgery is done. The idea that the condition is a surgical emergency is all wrong. Pus tubes do not rupture. In many years of practice I have seen that contingency occur only twice. Sporadically, here and there, we find men arguing in favor of immediate operation, but in the leading clinics of the

world we find that acute salpingitis was long ago taken out of the realm of surgical emergencies. This is particularly true in those clinics where a follow-up service is properly organized and the real results of expectant treatment may be seen. Thus in Holtz' clinic in Scandinavia, where the follow-up system is perhaps the best in the world, a recent report of more than a thousand cases treated expectantly shows 82 per cent of clinical and 12 per cent of functional cures, and only 2 per cent of total failures. No clinic where immediate surgery is the rule can show such results as this.

Tubal infections promptly subside under rest treatment and auto-sterilization takes place. This is especially true of specific infections. Mixed infections, on the other hand, are prone to be long drawn out affairs, and the rest which is essential tries both patient and physician. It is important to remember, too, that a patient who is running a temperature of 99.5° or even 99° is not a thoroughly cooled patient; her rest must be prolonged until even this slight fever has disappeared for two or three weeks and preferably longer. The patient, given time, will always develop her own immunity, and when operation is necessary, if it ever is, it will be a simpler and safer affair than if it had been done in the presence of active bacteria and inflamed structures.

Another point which should be specially stressed is the prophylactic measure of rest in bed after there has been an infection of the lower genital tract. This is particularly important during the menstrual period, when extension upward is the rule if the patient is at all active. The proper utilization of this simple measure would prevent many trying cases of salpingitis.

Finally, colpotomy, as Dr. Chipman has properly emphasized, is a decidedly valuable measure in evacuating localized pus collections which point in the cul-de-sac. Except for this, however, acute pelvic conditions should be let severely alone, not for days, but for weeks and months. Operation during the acute stage may be a brilliant surgical feat, the technique may be excellent and the immediate results all that is desired, but the end results are what our book-keeping must be based on, and the last state of that patient is often worse than her first.

Dr. R. Matas: I did not expect to be called upon to take part in this evening's discussions, but I am glad of the opportunity afforded by the courtesy of the Chair to at least say how much I have enjoyed the addresses delivered by the distinguished speakers of the evening. Limiting myself to Dr. Chipman's address, since the discussion of Dr. Polak's paper has been closed,

I will state that this is not the first time that I have had occasion to express my appreciation of Dr. Chipman's merits. It was my good fortune to have been associated with him on the Board of Regents of the American Colleges of Surgeons for a number of years and later as my successor in the Presidency of the College at Montreal, in 1926. Throughout these relations I have had ample opportunities to admire his personal qualities as a leader in the profession and as public speaker, which we have enjoyed so much tonight. Dr. Chipman is as much a part of the profession of the United States as he is of Canada and no one is better fitted to symbolize through his genial personality the cordiality of the relations and the unity of purpose that bind us to our Canadian brethern. The ties that bind the people of this country to Canada are particularly strong in Louisiana where the very foundation of its history were laid in Canada and the recollection of these historic associations gives added zest to the pleasure of Dr. Chipman's visit.

In his discussion of the acute conditions that affect the female pelvis, Dr. Chipman has covered a large field bristling with problems that often tax the diagnostic skill and the best judgment of the practitioner. Throughout the discussion he has revealed himself not only a most experienced and expert clinician but a wise and discriminating surgeon who knows how to subordinate his operative skill to his knowledge of the proper moment for its application.

The great superiority of the clinical evidence over the pure laboratory findings in the differential diagnosis of pelvic pathology cannot be exaggerated. Without in the least decrying the value of the laboratory as an aid to the clinician, we must never forget that it is the man at the bedside who is looking at the patient and who is responsible for his welfare, who is the real diagnostician and it is he who alone should interpret and give proper valuation to the laboratory findings.

I am quite sure that we are all in perfect agreement with Dr. Chipman's teachings in regard to conservative treatment to pelvic infections. Paradoxical as it may seem, he expresses the sentiment of every conscientious surgeon when he intimates that the ideal of surgery would be the suppression of causes of surgical diseases that now require surgery.

While this dream of bloodless and knifeless therapeutics is as futile as it is Utopian, it is none the less true that the more experienced and skillful the surgeon the better he knows how to appraise the limitations as well as the possibilities of his Art. How tempestuous and dangerous may be the untimely interventions of the operat-

ing and inexperienced gynecologist in dealing with the acute infections of the uterus and adnexa, and how much safer and less mutilating is the practice of watchful waiting for the acute virulence of the infection to subside, is well demonstrated by Dr. Chipman's abundant experience and observation. To know *when to* and *when not to* operate is one of the finest tests of the surgeon's judgment. It is an attribute of the mind which can be acquired only by long, patient observation and scrutiny of the patient at the bedside. How the laboratory can aid the clinician in his judgments has been well shown by Dr. Polak in his treatment of the toxemias of pregnancy.

The two essays that we have heard tonight are most impressive from the point of view of the greater precision with which the indications and contraindications for operative interference are defined in modern practice and the singularly lucid and instructive way in which the advances of contemporary practice have been exhibited, are most gratifying and will be remembered long after tonight.

ACTINOMYCOSIS IN LOUISIANA.*

HERMANN B. GESSNER, M. D.,

NEW ORLEANS.

It is customary in schools of medicine to teach the diseases frequently met with. In medical societies most papers deal with common conditions. This is as it should be. However, the unusual will occur and when it does the patient needs recognition and cure for his disease. Therefore, conditions like actinomycosis are entitled to a certain amount of attention from us.

Having recently dealt with a case which was recognized early, and having contributed to the making of a late diagnosis in a case that originally had failed of recognition by me and others, I have investigated the incidence of this disease among animals in our section. (Actinomycosis in cattle is known as lumpy jaw or wooden tongue.) An inquiry directed to the Louisiana Live Stock Sanitary Board in October last brought from Dr. E. Pegram Flower, Sec. and Exec.-Officer, this reply: "Only occasionally is a case re-

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ported or a condition of this kind brought to our attention. During the last ten years we have seen but five cases of this trouble." An investigation was then made of the incidence of actinomyccosis in humans in New Orleans. In Charity Hospital there have been recorded during the year 1906 to 1927 two cases confirmed microscopically, besides two not so confirmed. In Touro Infirmary during the years 1921 to 1927, five cases were recorded, all microscopically confirmed. These cases include among the microscopically confirmed two of the jaw, two of the lung, one of the pelvis, one of the arm and one of the foot.

Following is a detailed account of a case recently seen and early recognized through microscopic examination.

O. J. H., a white male, aged 40 years, came to the clinic of the Tulane School of Dentistry about August 1, 1927. He complained of a painful swelling over the gums of the left half of the mandible, corresponding to the incisors and the cuspid. Examination of the teeth failed to explain the swelling; a roentgenogram was negative. When he was sent to me I found a swelling at the site above mentioned. My recommendation was that suppuration should be hastened by the use of a poultice and the lesion incised. A few days later I learned that an abscess had been opened which showed no tendency to heal. Suspecting some unusual infection I suggested a microscopic examination. This was made by Dr. H. W. Butler, Instructor in the Laboratory of Medicine of the Tulane School of Medicine, who found actinomyces (group streptothriciae) in smears and succeeded in making anaerobic cultures. By this time an area of induration with purplish discoloration had appeared in the skin over the mandibular lesion. On August 22 the patient was admitted to Touro Infirmary, where, under general anesthesia, the involved parts, from skin to periosteum inclusive, were excised. The bone was found soft and was curetted away; the loose incisors and cuspids were removed. Examination of the tissues by Dr. John A. Lanford, Pathologist at Touro, confirmed the previous finding of actinomyces. A roentgenogram of the lungs showed no involvement. The patient was discharged from Touro Sept. 2, 1927, improved. The skin wound healed; the mucous membrane healed but soon reopened, discharging pus in which actinomyces were found by Dr. Foster M. Johns. At this time the case was brought to the attention of Dr. Alton Ochsner, Professor of Sur-

gery in the Tulane School of Medicine, who recommended treatment with radium and massive doses of potassium iodid. The iodid was given in increasing doses until a maximum of 615 drops was given three times daily; this dose was kept up for three or four days. Dr. M. Van Studdiford of the Charity Hospital Staff provided the treatment with radium which consisted in the administration of 3600 milli-curie hours September 30, and 3600 on October 28. Complete healing took place by December 1. On April 5 the patient reported himself fully healed and in excellent health. Efforts were made to determine the source of infection in this case without success. This was a man who had had no relation to the animal industry, but had lived in the city all of his life, had not contracted the habit of chewing grass, straw or grain of any kind.

The patient (G. M.) referred to above in whom the diagnosis was made tardily, was operated on by me for an abscess behind the symphysis menti; no culture was made. Subsequently with the recurrence of the infection he went to a colleague who made two successive incisions; finally he went to another colleague who asked me for information about the first abscess. I suggested microscopic examination which was made by Dr. Foster M. Johns with the result that actinomyces were found.

Comment: The clinical diagnosis of actinomyccosis is not readily made unless sulphur granules are seen. Chronic sinuses, skin ulcers with induration resembling broken down gummata, suggest the disease especially about the face and jaws. These cases would be recognized more regularly and earlier if microscopic investigations were made of all abscesses opened, especially those presenting unusual characteristics. Sulphur granules should be looked for in all suspicious lesions.

It should be borne in mind that actinomyccosis treated early when it is only peripheral has a recovery rate of about 90 per cent. Later, when the internal organs (lungs, brain, ileo-cecal regions) are involved, the prognosis is far less good, with under 20 per cent of recoveries.

Dr. Hermann B. Gessner (closing): I have been looking for actinomyccosis for many years and these two cases are the only ones, so far as I know, with which I have had direct contact.

I think the difficulty about this diagnosis is the expense of getting the pus found in these abscesses examined. At Touro and some of the other hospitals there is an arrangement made for indoor patients whereby a common charge covers all laboratory work done. However, there is no such provision for the patient who comes in for treatment room work. It is possible that at some future time we may be able to arrange for this also. At present if we bring them in to the treatment room and they pay the hospital \$3.00-\$5.00 to have an abscess opened, a separate charge of \$5.00 or \$10.00 for a laboratory examination of the pus is, I think, rather high. I believe this to be the reason why cases of actinomycosis and other unusual infections are so rarely made. The doctor does not feel justified in having his patient pay \$5.00 or \$10.00 to find out that he is dealing with *staphylococcus pyogenes aureus*, which is the usual infecting organism.

CONSERVATISM IN SURGERY*

J. F. ARMSTRONG, M. D.,
JACKSON, MISS.

In presenting this short, rambling paper, I do not hope to bring to your attention anything new and startling, but if I succeed in getting any comment, probably the discussion will be mutually helpful.

A paper of this title, "Conservatism in Surgery", naturally embraces a very large field, therefore I shall attempt only to touch the high spots. It is far better to have a live, although physically indisposed patient, than a dead one. Oftentimes in our eagerness to make our patient 100 per cent efficient we take too great a risk. Each patient has a certain vital resistance, the resistance which gives him the stamina to withstand a certain amount of shock either surgical or otherwise. As these patients come in to us their vital resistance is necessarily lowered due to the ravages of the condition which we are asked to relieve.

Should we not therefore treat these patients as individuals and operate for the condition as we find it rather than attempt to perform an operation which we might call standardized? Should we make it a

habit to invaginate in all cases of appendicitis, regardless of the condition of the stump we are about to bury or should we look the situation over and proceed with regard to the welfare of our patient and not with the idea of performing a certain routine? Every surgeon feels that when a patient has consulted him and consents to an operation that that patient has placed his life in the surgeon's hands and that the responsibility rests entirely with him. Consequently that surgeon will do everything in his power to send his patient home completely cured. Any mediative or partial cure can not give the satisfaction that a complete and lasting cure can give. No surgeon is capable of putting a valuation on the life of any person, whether that person may be physically perfect or an invalid. Some of the greatest achievements of our nation have been made by people, who from a physical standpoint, are worthless. Consequently we must never overstep our limitations or the physical limitations of our patients in trying to overoperate.

Take, for instance, our cases of appendicitis with abscess. Some of these cases have been ill for many days, their vital resistance is lowered and as a rule they are poor surgical risks. Nature has done her best to protect the patient from a general infection by throwing up a barrier and localizing the infection. We feel that the lives of these patients may be saved if the pus is quickly evacuated and the cavity drained. The abdomen is opened and quantities of thick pus containing pieces of debris which are probably part of the necrotic appendix, is liberated. We find, on careful digital examination, a well defined wall of adhesions surrounding the abscess cavity. Should we prolong this operation a sufficient length of time, in view of the patient's condition, to separate and remove the remaining stump of the appendix, thereby subjecting our patient to the additional shock and possible spreading of the infection, or should we simply drain the abscess, leaving the appendix alone, not dis-

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

turbing the adhesions? My opinion is that the less manipulating done in an acute peritonitis abdomen the better chance the patient has for recovery. It is a fact that some of these patients will return at a future time with symptoms similar to the initial attack and that another operation will be necessary to relieve him completely of his symptoms. However, the chances are that he will be far more able to undergo an operation at this time than before, even though he may see fit to go to another surgeon for his second operation, which he will very likely do.

Acute intestinal obstruction frequently gives a surgeon a chance to over-operate. The patient is badly shocked, pulse weak and thready, a history of total obstruction for many hours or even days. Is it not better to do a rapid enterostomy under, possibly, a local anaesthetic, than a complete exploratory operation, subjecting your patient to additional shock and danger of death? Frequently we see these patients relieved entirely of their obstruction without a secondary operation, due to the release of pressure. Even though a secondary operation is necessary we will have a patient much more able to undergo it.

The gallbladder is probably the most over-operated upon organ in the body. Unanimity as to the surgical technique involved in the removal of the gallbladder has been very much more definitely reached than has unanimity of judgment as to the relative merits of cholecystotomy and cholecystectomy. The relative risk involved, however, is a matter of common sense. It may be said that in America, at the present time, there is a tendency to entirely remove the gallbladder whenever there is occasion to operate on the biliary tract at all. While there is no hard and fast rule to determine which cases shall be subjected to the former and which to the latter, it seems possible that many are sacrificed without full warrenty, which under incision and drainage should remain useful organs. There is a human tend-

ency to treat lightly an organ whose presence seems not to be imperatively necessary in the physical economy, even though unfortunate errors have been made in the past in regard to the total removal of the structures then considered unnecessary. Abroad the gallbladder appears not to be so sweepingly removed as in our own country. Besides the removal of the gallbladder does not prevent, absolutely, the formation of gallstones and infection. They may subsequently occur in the common duct. Mayo Robson questions whether the common duct does not subsequently dilate and become, practically a gall reservoir, a secondary gallbladder, as he and others have encountered in some cases. He further states that: "At best, it is merely an expression of ignorance to say that the gallbladder has no useful purpose to serve." Surgical knowledge, at best, is very limited, indeed, exceedingly limited, and greater modesty of judgment as to what is and what is not necessary, might serve both patient and surgeon more substantially than the total sacrifice of any structure without very good and incontestible reason for its loss. It is of course necessary, at times, totally to remove the gallbladder, but the routine removal of this organ can only be condemned.

Certainly, it takes more nerve on the part of the surgeon to leave a part of a sloughing appendix or an obstructed intestine, for he will have to face the patient's relatives and admit that the operation has not been completed in detail and that a secondary operation may be necessary. But I believe that the average surgeon will be more than repaid for pursuing the conservative course by a decided lowering of his mortality.

Conservatism in surgery is becoming more and more universal every day. The many stage operations are more common than ever before. Patients are given better attention prior to the operative procedure. It is not rare to witness a many stage thyroidectomy, cholecystotomies and enterostomies are frequent. Cancer of the sigmoid and rectum are not removed in one

stage operations any longer. Many stage operations are the methods of choice.

It is the custom of some men to remove the appendix routinely but if this is done consistently it can lead to nothing but harm for the patient. After a prolonged operation for pus tubes, uterine fibroma or operations on the upper abdomen the added time and shock, even though it may seem negligible, may lead to a prolonged convalescence or even death of the patient. Every surgeon will go far to preserve ovarian tissue for the function of the ovarian tissue is well understood and is known to be so necessary to the welfare of the patient. He always feels a sense of keen disappointment when he finds it necessary to remove any particle of ovarian tissue.

Just a word to incisions. Every one will admit that small incisions are very neat and altogether pleasing to the patient, but are they as efficient as the larger ones where it is possible to explore more easily with less traumatism to the tissues and with more thoroughness? Many incipient pelvic lesions can be corrected very easily, hereby, probably saving the patient much discomfort and maybe another operation. The larger incisions will heal just as rapidly and with practically as little pain and will certainly give the surgeon a better chance to do a thorough operation.

I do not wish it to be understood, by what I have said, that by conservatism I mean doing as little as possible in an operative way, but merely to limit the operative manipulation in our patients who come to us in critical conditions. On the other hand it may be necessary to do a far more radical operation than may seem necessary, in order to be conservative in some cases. Malignant tumors of the extremities can be taken as an example. It is not conservative to remove as little as possible of the member in order to save as much apparently normal tissue as necessary in order to be sure that all of the offending growth has been eradicated.

Dr. S. W. Johnston (Vicksburg): Dr. Armstrong's paper emphasizes my views exactly in conservative surgery. There is one thing, however, he did not mention—that is conservation in pelvic surgery. I think most conditions of the tubes will clear up without any surgery whatever. I believe in gonorrheal salpingitis, the diathermatic treatment combined with hot douches and absolute rest in bed will in a vast majority of cases give gratifying results. As to intestinal obstruction he is absolutely right. In cases seen after 24 hours an enterostomy is the only surgical interference that should ever be attempted. A large number of cases will recover without any further surgery, but of course there are some in which a second operation would have to be done. To hunt around in the abdomen looking for an obstruction with a patient shocked and dying from toxic absorption is not the work of a true surgeon. Restore the loss of your blood chlorides with intravenous saline injections, stimulate your patient and give them absolute rest. A local anesthetic should always be used when possible, this itself lowers your mortality. I enjoyed the paper very much.

Dr. J. A. Crisler (Memphis): I think all surgeons will agree with Dr. Armstrong. Let's not merely call it conservative surgery, but good surgery. There is one point that I would like to emphasize, that I believe is conservative surgery in cases of acute intestinal obstruction. The reason we have deaths from intestinal obstructions is first, that we have dammed up behind the obstruction a fecal current which becomes intensely toxic and beyond you have a ribbon shaped gut that is hungry and dry. When you overcome the obstruction and let this current full of intensely toxic material pour down into your really healthy ribbon gut, that is flat and hungry, you get an acute absorption that will kill your patient sometimes in twenty-four hours.

Now here is one little trick that we have adopted in relation to that. We will say we have an enormously distended intestine above the obstruction and below you have a flat, ribbon-like gut. You generally find your obstruction quicker by following this ribbon gut here to the point of obstruction than any other way. Now, it is a calamity if that obstruction has remained intact for a period of twenty-four or thirty-six hours, to release the obstruction. Pull this distended gut over and empty it. It is best then to take a needle and fill this hungry gut full of saline solution. You have then fed this hungry gut so that when these remaining poisonous elements go down it, the absorption has already taken place and they find that hungry gut already filled.

Dr. H. A. Gamble (Greenville): Dr. Armstrong has voiced a reference to the conservative treatment of all the conditions enumerated, and particularly so of intestinal obstruction. While I feel that beyond the fact that operating for intestinal obstruction is simply to put a tube in and get out the pus, yet it depends upon what kind of obstruction you are dealing with. If you are dealing with adhesions that is all that is necessary. If you are dealing with cancer, your patient dies. Sometimes you have to do a resection. If you are dealing with an intussusception, you have to, as a general rule, not overlook the fact that you have this dammed back poisoned material. We usually when we are dealing with cases of that type, put a large tube in the bowel, invert it and push it up and it occludes the bowel at that point temporarily, and that intestine will drain out in the first four or five hours. In the course of a few days the tube will loosen up and the intestinal tract is open and you get a natural reaction. If you do not adopt more active measures than simply draining the bowel, the patient would certainly succumb to the pathology.

RADIUM IN THE TREATMENT OF UTERINE DISEASE.*

WALTER W. CRAWFORD, M. D.,

HATTIESBURG, MISS.

In view of the fact that Dr. Holmes will also read a paper on the above subject, my discussion will be very brief. Three forms of pathology will be considered:

Uterine bleeding—Benign.

Fibromyomata.

Carcinoma of cervix and fundus.

UTERINE BLEEDING—BENIGN.

After eliminating the cases of uterine bleeding due to incomplete abortions and granular endometritis, there is left a rather large group of patients in whom the curet, ergot and pituitrin utterly fail to bring relief. This last group ranges from young girls to women above fifty years of age. Some of these give the history of almost a continuous menstruation lasting, as in one of our cases, five years. Others bleed so excessively at their regular time that it is not possible to manufacture an adequate supply

of blood during the short intervals between, hence they become victims of an ever increasing anemia. During the past three years we have had occasion to treat seventy-one cases of this latter group with radium. They ranged from twelve to fifty-seven years. All of them have made a very satisfactory response to the treatment.

If one bears in mind the age and end result desired in each patient and administers only the number of milligram hours necessary to attain same, he may confidently expect relief. Patients who have reached the age of forty and are presumably beyond the child-bearing period are given a larger dose with the deliberate intention of permanently suppressing the menses. If any doubt exists as to the possibility of an early malignancy the dose is materially increased. In young girls and young women, both married and single, it is highly important that no permanent damage be done to the ovaries, therefore a minimum dose is given.

If the patient is quite anemic from loss of blood, the dose should be larger than in those cases in which hemoglobin is above 60%. It is desirable in this type to stop menstruation entirely for two or three months, during which time the blood may be restored to its normal balance. If patient's condition does not make this necessary, then only enough radium should be administered to regulate the menstrual flow. When the minimum dose of radium has been administered the patient is told that a second dose may be necessary to attain the desired end. We have only found it necessary to repeat our treatment in two cases. This was two years after the original dose.

In one of our patients, a girl of nineteen who had menstruated almost continuously from the age of fourteen, and gave the history of two previous treatments with radium in one of our larger cities without relief, nine hundred milligram hours produced a very happy result.

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

In answer to the frequent question, "Will radium produce permanent sterilization?" I wish to emphasize the fact that an adequate dose to correct benign bleeding will not produce permanent suppression of menstruation, and, therefore, will not produce sterility. Many of our cases were among school girls and no check could, of course, be made on them; but two young married women who had hitherto been sterile became pregnant a few months after treatment with radium.

A patient consulted us last week who, in 1924, at the age of 37, was given 1,800 milligram hours of radium on account of excessive uterine bleeding. She weighed more than two hundred pounds and was excessively nervous. Her menstruation stopped for one year then appeared at three month intervals for five years, and during the past year has recurred at intervals of two or three weeks, though in a small amount. She is no longer nervous and has lost more than fifty pounds. Examination revealed a small uterus.

This case is related as an illustration of the fact that, instead of producing nervousness, as is contended by some, radium may actually relieve that condition.

UTERINE FIBROIDS.

In order to secure best results, careful discrimination must be made in the selection of types of fibroids for treatment with radium. Very few fibroids larger than a four months' pregnancy should be chosen, though occasionally good results are noted in larger ones. Smooth myomas respond in a very satisfactory way; on the other hand, the pedunculated type and most multiple fibroids of extramural type should be treated surgically.

Great care should be exercised in an effort to exclude all cases complicated by tubal or ovarian infection. Our first case belonged to that group. Despite a careful pelvic examination and negative blood count, this case, a negro woman, exhibited an active flare-up in tubes a few days after

treatment and was violently ill with pelvic peritonitis several weeks.

If one application of radium does not cause some reduction in the size of the neoplasm subsequent radiation will usually be attended with failure. Per contra, a second dose may be indicated to complete retrograde evolution when the first dose causes shrinkage. We have not found more than two applications helpful in our cases.

A patient consulted us on April 26 who was having hemorrhage after four doses had been given in another clinic without affording relief. Such a case should, of course, be given the benefit of surgery rather than further radiation, as requested by her.

CARCINOMA OF CERVIX AND FUNDUS UTERI.

Uterine malignancy in its various forms has always been a disappointing field for the surgeon. The primary cause for this has been failure on the part of the patient to consult the family physician until the disease had already metastasized. The surgeon has not only to reckon with the immediate operative mortality but recurrence from malignant cells that may have already been transported to points beyond the uterine wall. Wertheim, many years ago, undertook to neutralize this disadvantage by an extensive dissection of the pelvic glands. His statistics showed an improvement over the old technique, but, in addition to the fact that it increased the surgical mortality of the average operator, it did not approach the ideal in end result.

During the past decade radium has become the procedure of choice because of the fact that it has yielded a higher percentage of cures among the early cases than surgery, and is applicable to the large group of advanced, and, therefore, inoperable cases, that had hitherto been classified as hopeless.

This accomplishment is attained by an immediate mortality of negligible proportion and a minimum hospitalization.

Many of the cases of neglected carcinoma of the uterus are directly traceable to fear and prejudice on the part of patients to surgery. Women who oppose what they regard as mutilating operations readily consent to the use of radium. It is, therefore, a reasonable supposition that, when they shall have learned that there is an equal if not better chance to solve their problem through the conservative use of radium than by the knife, they will present themselves for examination at an earlier date than in the past, and thus make a material contribution to the percentage of cures.

The number of cases that present themselves to our clinic each year that are too far advanced even for palliation with radium illustrates the need for further education. Unfortunately this need is not confined to the uninformed. We have under our care at this time a graduate nurse who had been on duty in one of our larger hospitals during the past three years; and when she reported to us for treatment we found that she had an advanced carcinoma of the cervix that must have produced symptoms at least two years ago. She, of course, belongs to the group of fatalists who hide behind the belief that some how or other they will escape punishment for violation of nature's laws.

We have treated sixty-six cases of carcinoma of cervix and uterus in our clinic since 1924. Of this number there were

11 cases of fundus

3 cases of fundus and cervix

52 cases of cervix

Deaths:

Of this number 10 have died.

Of these were

4 uterine.

6 cervix.

Interval since treatment:

5 cases 1924, 4 living, apparently cured.

15 cases 1925, 11 living, 10 apparently well, 1 with metastasis.

23 cases 1926, 18 living, apparently well.

17 cases 1927, 16 living, apparently well.

7 cases 1928, 7 living.

48 out of 66 are symptomatically cured.

7 are under treatment at this time.

1 has pelvic metastasis and will die.

None of the above group is beyond the five-year period and, therefore, we can reasonably expect a few additional deaths.

Ten of our cases were given a second dose. Of these, six have died.

This prompts the discussion of the important question of

DOSAGE

So many factors enter into the successful treatment of malignant diseases of the uterus with radium that it is not advisable to be dogmatic in outlining a program. It would seem that best results are obtained when the total treatment is completed in one week rather than to administer a smaller amount at intervals of several weeks, as advocated by some radiologists. The technique and distribution of the radium are of prime importance.

In discussing radium with a few men who have secured indifferent results in treatment of cancer of cervix we have found that they have depended upon capsules as containers. If these same operators will use ten milligram steel needles or implants and distribute them in the cervix so that they will secure cross-firing and exposure of the entire field to radium rays, they will find that the end result will be greatly improved. In advanced cases, and especially the cauliflower type, a preliminary removal of proliferative and necrotic tissue with an electro-cautery will be of especial advantage.

COMPLICATIONS AND SEQUELLAE.

Sepsis: Care must be taken to exclude infection either in the adnexa or in the necrotic tissue of an advanced case before

applying radium; otherwise, an acute sepsis may result. One of our advanced cases of cervico-uterine types developed a temperature of 103° at the end of twenty-four hours and died of sepsis within one week. This case, and the one with fibroid mentioned above, are the only two in our total series; but both were sufficiently dramatic to emphasize the importance of careful selection of one's cases.

VESICO- AND RECTO-VAGINAL FISTULA.

In order to obviate the development of fistulae in cases in which there is infiltration of the vagina and rectum, it is necessary to reduce the time exposure in that region to the minimum. If necrosis is extensive in this region radium should not be used, as it will hasten formation of fistula. One of our first cases developed an extensive vesico-vaginal fistula.

Leukorrhea: Most of the cases have leukorrhea lasting from one to several months. If the condition is due to vaginal irritation, mild alkaline douches relieve it. If due to an unhealthy endometrium, applications of 2 per cent mercurochrome will relieve it.

Ulceration of bladder, when seen, is a late manifestation. It is often six months and even a year before the symptoms appear. Argyrol instillations will usually relieve it.

PROGRESS OF HEALTH WORK IN MISSISSIPPI FLOOD AREA.—The evolution of the efforts of the American Red Cross and the co-operating agencies during the early stages of the catastrophe into eighty-six full-time health units concerned with the conservation of public health is regarded by Charles N. Leach, New York, as being one of the gratifying developments of the past year in public health work in the United States. Smallpox morbidity shows a significant reduction in forty-one counties of the flooded area of Kentucky and Louisiana, while the smallpox morbidity of those two states as a whole was increased. The death rate for malaria in fifty-five flooded counties in Kentucky and Louisiana shows an annual decrease over a period of ten years. The increase during 1927 is not out of line with the downward trend for the period as a whole. The death rate for pellagra in Kentucky was on the decrease over the first eight years of the period but increased in 1926 and 1927. In Louisiana the death rate for pellagra was practically constant throughout this ten year period. The death rates for typhoid, infantile diarrhea and diphtheria in the fifty-five flooded counties of Kentucky and Louisiana for 1927 did not show an appreciable variation from the trend for the past ten years. Jour. Am. Med. Assoc., 91:1595-1599, 1928.

THE USE OF RADIUM IN MALIGNANCIES AND CERTAIN GYNECOLOGICAL CONDITIONS.*

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Twenty years have come and gone since radium was first used in gynecology—the therapy is now world-wide and occupies an enviable position co-ordinate with surgical and medical measures. Radium is used with variable success in cancer and other lesions.

Radium is a metal combining with various acids to produce salts. It belongs to the group headed by uranium with lead perhaps the last element. The entire series, except the ultimate lead, undergoes atomic decay. This instability varies enormously in several members of the group. It is lowest in uranium, very slow in radium, quite rapid in radon, and extremely rapid in active deposits made up of elements termed radium A, B and C. In this transformation from one element to another, three kinds of rays are emanated: the alpha, beta and gamma. Practically only the gamma rays are used in gynecology.

The indications for the use of radium and the treatment of pathogenic lesions of the uterus has been definitely defined since 1920. The dangers or contra-indications to its employment have been equally clear. While it has not proved as widely efficacious as at first thought to be, its results in certain conditions have been demonstrated to surpass those of any other treatment heretofore employed.

The three conditions which are obtained in every radical operation of cancer of the cervix, blood loss, trauma, and prolonged anesthesia, are eliminated, thereby obviating the reduction in tissue reaction and general vitality which these three factors produce.

The indications for the treatment of fibromyomata involving the body of the

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uterus are variably interpreted by surgeons and radiologists. The logical analysis of the situation appears to be as follows: In women under forty presenting such a growth, the treatment of choice is surgical removal. In case the hemorrhage has been too severe to interfere with the safety of the operation, it might be well to use a sufficient dose to check hemorrhage in order to prepare them for operation. The younger the patient the greater the importance of the preservation of the ovaries, because of the internal secretion and the part they play in the establishment and maintenance of the sex function, particularly in the earlier years of life. (As opposed to operation with the two per cent risk are those who desire and prefer irradiation, even though it involves destruction of the ovaries, rather than operation with its concomitant pain, discomfort, confinement and convalescing.) At and after the age of forty the child bearing function of the uterus has usually been fulfilled. At this age irradiation finds a comparatively wide field of usefulness, its limitations being determined by the size of the tumors and their situation. We have employed radium alone in ten cases of fibroid uterus with a gradual reduction in size of tumors with complete cessation of symptoms.

About ninety-six percent of cancers of the cervix are in women who have borne children, usually with a history of miscarriages or instrumentations. There is usually a slight laceration of the cervix. It is possible to have carcinoma of the cervix in a woman who has had no children, no miscarriages, no instrumentations. We have had one in a woman aged twenty-five years, with a well marked cancer of the cervix, followed by complete healing after the use of radium. Every erosion of the cervix is a potential cancer. Dr. Ewing says that evidence points to the origin of carcinoma from previously normal adult cells which pass through a series of changes induced by chronic irritation and terminates in carcinoma.

There appears to be only one known way successfully to combat the high mortality of cancer and that is by recognition of the process in the earliest stage, or better to identify those which are definitely known to be the forerunner of malignancy in a very great majority of cases. The cervix, because of its location is strikingly susceptible to infection, trauma, and malignancy.

The deaths from cancer of the cervix are nearly twenty thousand in the United States each year. Thirty-five percent of all cases of carcinoma occurring in women have the origin in the uterus, and about 98 percent of those develop in the cervix. One woman out of every twenty-seven dies with uterine cancer.

There are four predisposing reasons why the cervix is so susceptible to cancer formation: First—two distinct types of cells join at the external os, the squamous cells of the vaginal portion and the columnar cells of the cervical canal. This is known to favor distorted cell activity, especially so when the conditions such as have been mentioned are active. The complex cellular character gives a very unusual picture to many of the lesions occurring here. Second—trauma, due chiefly to injury at childbirth. Third, and most important—infection, acute and chronic, especially the chronic. This is the chief complication involving the cervix that produces prolonged irritation. It is the best example of chronic irritation predisposing to malignancy. Fourth—discharge. This is the natural result from an injured tissue. It is secondary reaction resulting from infection.

The cause of cancer is still unknown—by this we mean, we do not know precisely just why cells disobey the laws of natural reproduction and grow wild. In the absence of this knowledge of the specific cause of the disease, it seems reasonable to assume that these predisposing lesions are of the utmost significance, and that a great deal more attention should be given the cervix and its lesions than is customary.

SYMPTOMATOLOGY AND DIAGNOSIS.

Nearly all cervical lesions produce excessive secretions. A woman who complains of both discharge and bleeding should be suspected of having a beginning malignancy. It should be taken as a logical deduction that hemorrhage as a symptom in a woman over forty years of age should always be considered to be due to malignancy unless proven not to be. Also recurrence of vaginal hemorrhage after the menopause is practically always due to cancer. Chronic irritation such as has been mentioned should be corrected. So important is the lesson that not a few students of cancer have given this as their opinion that probably more cases can be prevented than cured. We urge all women treated with radium for cancer of the cervix to return each month for six months for observation, and try to keep under observation for at least five years. If they are well at that time, we feel that we have perfected a cure. In the cervix the reaction to radium is so nearly uniform that if a case progresses satisfactorily so that we can tell if they need a second dose, there are usually five stages. One week after the first dose has been applied, the tissues of the cervix with the carcinoma and the adjacent mucosa of the vagina are usually red and hyperemic, the blood vessels following the use of radium are engorged, and operation is contra-indicated on account of hemorrhage. Usually a month after the radium is used the cervix shows a greenish slough, and a foul discharge from the broken down cancer tissue. Not all cases slough at the same time—some are faster than others. Two months after treatment, the appearance of the cervix is changed due to the slough having separated, leaving a clean, dusky, red cervix, somewhat glazed, but no clinical evidence of carcinoma.

The third and fourth month should show a stage of contraction. The connective tissue is excited by irradiation, and markedly reduces the size of the cervix as well as the vault of the vagina.

The selective and destructive action of radium upon cancer cells, either destroys outright, or stunts some of the cells, but the principal inhibiting action of the radium on cancer is in the stimulation to growth of connective tissue, which enmeshes the cancer cells, shuts off the blood supply and starves the cancer by forming a barrier zone and this imprisons its victim for a period that may be long or short. At the end of six months, the final stage of contraction is reached. The cervix is very much shrunken—looks like it may have been amputated. If this stage is not reached in six months, we give a second dose of radium.

In uterine bleeding of functional origin, radium stands practically as a specific and as a rule requires but one dose.

The value of radium in cancers of the mouth, nose, pharynx, larynx, esophagus, stomach, is stated to be bound up in the technique used. One cause of disappointment with radium work in cancer comes from inability to do massive work with small quantities of radium. The dose of radium should be a massive initial dose. We use the needles and capsules. Some use a fractional dose, repeated at intervals, but this method is not so popular.

Of our series of fifteen cases of cancer of the cervix, all inoperable, two are dead, five living four years after treatment, five three years; of the two dead—one lived a year and a half and one six months. Of two cases of cancer of the bladder treated, one died six months after treatment, one still living eight months after treatment.

DISCUSSION.

Dr. J. H. Barksdale (Jackson): We will first hear discussion from the floor. No response, so I am not going to let it go by default. I sometimes feel perhaps that I have become a radium enthusiast, perhaps an ultra enthusiast.

The subject is too broad to attempt to discuss in detail. We had this up at the Radiological Section last night. I think if Dr. Crawford had

gone back one year and could have started his search from 1923 instead of 1924 it would have been better. I think he has gotten his dates mixed up.

Not intending to discuss this paper I have no statistics available as to the mortality rate we have had in carcinoma of the uterus and elsewhere but I do know that our mortality has been tremendously decreased over the old methods. I do know that everything tends to prove that radium alone has a distinct and decided advantage over radium plus surgery and that surgery is the last thing to be desired in cases of cancer as we view the case at this time. I am speaking solely of uterine cancer. In the past five years I have not operated on a single case of cancer of the uterus, and I think, as I see it now, that I shall never operate on another case as long as I live, and with me that almost includes cases of cancer of the fundus which are rather considered to be surgical conditions. I feel very much the same way about small myomas or fibro myomas, more particularly the myoma, which is the safer type and more amenable to radium with the limitations that were so well explained by Dr. Crawford—that is where you have a smooth, even uterus, not a potato-like growth or excrescence, but where radiation can be equally distributed. In cases that do not exceed three to four inches in diameter and probably are more than 3 or 4 or 5 inches from fundus to cervix, we still think and believe that radium is the elective procedure and not surgery.

I think we become wedded to certain procedures, and the surgeon is slow to give up the operative procedure. If he is still in his early years, there is a glamor about operative proceedings that does not attach to a single every day sort of thing like the application of radium, but that glamour or enthusiasm should not lead us into imperiling the lives of our patients, when we feel that we have something that is not equally as good but as Dr. Crawford says, is better, and that can be considered with a minimum of loss of life, with a minimum of hospitalization, and with a maximum of good.

Dr. W. W. Crawford (Closing): I haven't anything further to say. There are a great many things left unsaid. It is rather like discussing the appendix; you can talk about it all day and still there are some angles that you haven't touched.

THE CLINICAL VALUE OF THE NEUTROPHILE NUCLEUS INDEX, THE LYMPHOCYTE INDEX, AND THE MONOCYTE INDEX IN TUBERCULOSIS.*

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During the past twenty years, the weekly examination of blood smears stained and fixed with Wright's stain, has been a routine practice at the sanatorium and clinic; and the thousands of blood slides examined have lead to conclusions which I feel are of some clinical value in tuberculosis.

Fifteen years ago, in a paper read before the National Association for the Study and Prevention of Tuberculosis, I was privileged to mention the neutrophile nucleus index as a guide for the administration of the tuberculins. Since then, hundreds of cases of tuberculosis, mostly in the advanced stages, have been treated and given tuberculin—bacillus emulsion, or old tuberculin (Koch)—in various doses, ranging from .01 octillionth of a mgm. to twenty-five miligrams, and the intervals between doses have depended upon variations in the neutrophile nucleus index.

The neutrophile nucleus index is the percentage of polynuclear neutrophiles with a single lobe nucleus, or with a nucleus showing several lobes, all connected with an isthmus band.

Arneth's index is not the same, and varies from the neutrophile nucleus index, in that no difference is made in the Arneth index whether the lobes in the nucleus of the neutrophile cells are connected or not by isthmus bands. That the polynuclear neutrophiles, through their phagocytic and antibody properties, play an active part in the combat of the tissue cells against in-

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vasion and destruction by the tubercle bacilli, I feel no one can rightfully deny.

The very "active" and toxic cases of tuberculosis, always show an increase in the number—of polynuclear neutrophile cells, and a high neutrophile nucleus index.

Recently, the monocytes or large monuclear cells have been studied, both in the animal and in man, and present conclusions show that the monocytes are always increased, in the blood circuit, in the very "active" cases of tuberculosis. My own observations, although not complete, corroborate this fact. When both the polynuclear neutrophiles and the monocytes are constantly increased in number, it means a more severe infection than when the number of these cells fluctuates and falls within a short time.

It has been my good fortune to observe, years ago, that the neutrophile nucleus index is always above 94 in the very "active" tuberculous, or when allergic phenomena of tuberculosis are sufficiently strong to be denoted by the presence of physical findings and clinical symptoms. Thus, with an index of 94 or below, one can justly feel that tuberculo-protein toxins are not freely liberated at the time, and tuberculin, in qualified and graded doses, depending upon the "activity" in the foci of infection, can be safely administered. There is no danger of accumulative doses when the neutrophile nucleus index is used as a guide for the administrations of the tuberculins.

I hope it is well understood that, cases showing great "activity" in their lesions, and who are constantly absorbing, from the foci of infection, tuberculo-proteins in large quantities—surely do not require additional doses of cultural tuberculins.

Those of us who do not concur to the fact that the tuberculins are of value in the treatment of pulmonary and other forms of tuberculosis evidently have not thought of what is occurring in the tissues of the tuberculous patient who shows symptoms and physical findings which, after all, are nothing more than manifestations of

various allergic reactions, due to the liberation of virulent tubercle bacilli or their tuberculo-proteins, from foci of infection. The changes in the blood cells of the tuberculous are apparently due to the effect of some stimulus, probably a tuberculo-protein substance, upon various or particular cells. How often we see cases of tuberculosis, even in the advanced stages, lose their toxicity and clear their gross lesions, after weeks or months of persistent hygienic and rest treatment. What has been the reason for the improvement and sometimes the healing of the lesions in such cases? Tuberculin, or the tuberculo-proteins liberated from the patient's tuberculous foci. These tuberculo-proteins liberated by the tubercle bacilli have, through their allergic inflammatory reactions in the tuberculous foci, started a fibrosis which slowly replaced the softened and cavernous areas resulting from the necrotizing action of the large quantities of bacillary poisons upon hypersensitized tissues. Here we see why the action of tuberculin has been compared to a double edge sword.

Unfortunately, even the most rigid and prolonged hygienic rest treatment will not always cause the absorption and complete cicatrization of diseased foci, without the additional aid of one of the tuberculins.

Here, I will say, that a tuberculin immunity is long to acquire, and necessitates large doses of tubercle bacillary products, generally. Of the large number of our cases who have acquired an immunity to tuberculin, *i. e.*, who ceased to react repeatedly to 1 mgm. old tuberculin, in the skin, I have not seen one relapse during the past twenty years.

A few who had ceased to react to ten milligrams of old tuberculin, subcutaneously, have relapsed; but most of such cases have remained well for five to twenty years. This is the great test in the treatment of tuberculosis. How long does a patient remain cured?

I feel from observations made, that the neutrophile cells play an important role in

warding off more extensive lesions and severe infections. In the allergic reactions of the tubercle bacillus and its various by-products, the neutrophiles are in evidence.

The predominating number of polynuclear neutrophile cells present in the softened area of a reacting papule, following the intracutaneous injection of dead tubercle bacillary bodies in a tuberculous subject, is a display of nature's first efforts to protect itself, through an inflammatory exudative process, and to, thereafter, heal the diseased areas by favoring the formation of scar tissue.

The preponderance of polynuclear neutrophile cells in the reactive exudate, occurs in tuberculous foci elsewhere in the body, when focal reactions follow the administration of reacting doses of tuberculin, subcutaneously.

The blood examination of one who reacts constitutionally to the subcutaneous injection of tuberculin, illustrates most conclusively that an actual increase of polynuclear neutrophiles takes place during the height of a moderate constitutional and focal reaction. This fact is disputed by some.

The quality of the neutrophiles is also affected, as seen by the high increase in the percentage of polynuclear neutrophile cells with one solid lobe nucleus. The patient with little clinical manifestation of tissue resistance always shows a large number of polynuclear neutrophiles with a solid lobe nucleus; because the newer neutrophiles constantly flowing in the blood circuit, in such cases, are endowed with less phagocytic and antibody action than cells with separate multiple lobes.

These changes in the neutrophile blood picture are peculiar to all cases in whom tuberculin causes a focal and constitutional reaction, and are dependent upon the state of "activity" or "latency" of the lesions, and the size of the dose of tuberculin administered.

The matter of reaction to tuberculin will be discussed in another paper. Note, from

the study of blood smears, that the neutrophile nucleus index returns to its previous state, from a few days to a few weeks, after a reaction to tuberculin. This is the reason for not giving tuberculin oftener than every two weeks, in cases where the neutrophile nucleus index is not used. Otherwise, by accumulating from repeated reactions, an excess of new neutrophiles in the circulating blood—this occurs in different degrees in all reactions to tuberculin—one decreases instead of increasing tissues' cellular resistance. Give time for the new cells to mature.

The old saying, that the polynuclear neutrophiles increase in number and the lymphocytes decrease in number, in the more active cases of tuberculosis, has been repeatedly observed in my series of cases.

Now, we further know, that the ordinary toxic state following a reaction to tuberculin is also attended by an increase of polynuclear neutrophiles, with an increase, in the circulating blood, of monocytes or large mononuclear cells; and with a decrease of lymphocytes. This, however, is only temporary.

Cases thus reacting have generally shown an increase in the total count, but this increase is not great and is dependent upon the severity of the reaction.

The average case of tuberculosis, especially the class (A) patient, does not show an increase in the total white blood count.

It has been my experience to find, in the more "active" cases, a high lymphocyte index; which means that there is a decrease of lymphocytes in the circulating blood.

A low lymphocyte index means a higher percentage of lymphocytes in the blood circuit, and is always of a good prognostic significance in tuberculosis. As a rule, I have found a low lymphocyte index in children with hilum tuberculosis.

The low lymphocyte index persists in many cases that are clinically well, but who still react to the intracutaneous tuberculin test. When the disease has been completely eradicated from the tissues, the blood picture should return to that of the nontuberculous individual, *i. e.*, one who does not react to tuberculin intracutaneously.

A low lymphocyte index, especially below 1.5, is of some corroborative diagnostic value, as well as of good prognostic significance.

The recent work of Cunningham, Sabin, Morris, and others, relative to the monocytes being particularly confined to the tissues of the tuberculous, and finally being converted into the epithelioids of the tubercle—has lead me to tabulate the monocyte index, with the other blood pictures.

I hope to take up, at some future time, the deductions I have made concerning this phase of the life of the monocyte. The profession certainly owes a debt of gratitude to these workers for drawing our attention to the action and behavior of the monocytes in tuberculosis. The finding of the monocyte index is accomplished according to the suggestion of Morris and Tan, *i. e.*, is nothing more than the division of the lymphocytes by the monocytes.

The cases that I have followed up to now, and the final conclusions which I hope to report later on, show beyond doubt, that the more "active" and the more toxic the patient, the higher is the number of monocytes in the circulating blood, therefore, the lower is the monocyte index. My observations up to the present day, show that, in the very "active" and toxic cases of tuberculosis, there is a rise in the neutrophile nucleus index, a rise in the lymphocyte index, but a fall in the monocyte index. When the three indices thus show in the same patient, I feel that, as a corroborative factor to the clinical and

physical findings, we can safely state that the case is "Active."

This is a great addition to our armamentarium in the diagnosis and prognosis of tuberculosis.

The changes in the neutrophile index, the monocyte index, and the lymphocyte index correlate so well with the clinical and physical findings of the patients, that I feel with these indices we have valuable corroborative evidence of the nature of the disease under consideration, and surely are more enlightened relative to certain phases of tuberculosis. In guiding our patients through the long siege of this disease, we have in the neutrophile nucleus index a gauge for rest and exercise, and for the administration of tuberculin.

Conclusions from observations made up to date: Cases of hilum and pulmonary tuberculosis who are clinically "inactive," show a lymphocyte nucleus index varying from 0.7 to 1.8, and a monocyte index varying from 3.7 to above 17. A neutrophile nucleus index varying from 94 to 75. In cases of mild "activity" the lymphocyte index ranges from 1.6 to 3.1, and the monocyte index 1.8 to 8.6. The neutrophile nucleus index rises more frequently above 94. The very active and toxic case gives a lymphocyte index from 2.6 to 7.5, and a monocyte index from 0.7 to 3.6. The neutrophile nucleus index rises oftener above 94. In a very toxic case, the lymphocyte index ranges from 3.6 to 7.1, and the monocyte index from 0.6 to 2.1. The neutrophile nucleus index seldom falls below 96. Following a reaction to the subcutaneous injection of old tuberculin in reactive doses, there is always a marked rise in the lymphocyte index and a fall in the monocyte index. The neutrophile nucleus index also rises above 96. The total count is slightly increased, according to the severity of the reaction.

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DISCUSSION.

Dr. P. H. Jones, Jr. (Baton Rouge): I find myself just a little nonplussed as how to begin, first, on account of the remarks of the chairman, and, secondly, because Dr. Durel has put us in the middle of a subject that he could talk for hours upon and still have much left to tell us.

Tuberculosis is a subject of such long duration, such a varied picture, and most everyone is seeking so carefully for a means of making the a means of making the prognosis that we are all very much in debt to Dr. Durel for giving us such means. He has been talking about the counting of various white cells in the blood smear, so long as I have known him and probably before, and now that these cells are getting into a state of their own justified prominence, I am sure his observations would be of great importance to those who are endeavoring to pilot these cases.

So far as the neutrophilic index, I think he must have intended for me to say something in regard to that, because the monocyte I leave to those who have made friends with that particular cell and know it personally. He and I have had quite a vigorous discussion as to what was the monocyte and how we could label it, and we agreed, and, so far as we were able to determine, there were standards of techniques and routines laid out so we could recognize this new friend of ours. Personally, I think most laboratory workers would find little trouble right now in agreeing with each other, or with the originators of the subject as to what was a monocyte.

In regard to the neutrophilic cell, I have a little more personal friendship and can say when a case is reacting favorably to an administration of tuberculin; the number of lymphocytes with split-up nucleus is increasing; when the tuberculin is of slightly too much in amount, the number increases. In other words, the nearer the cells approach the simple type of nucleus, the more trouble the body is having in providing these cells, and the more strain.

That observation has seen no parallel with the way the patient feels. If they tell you, at the end of the week, that they have a cold, that they do not feel well, that they are generally in a state of malaise, on those occasions, the number of polynuclear neutrophiles with the nucleus split into two or three parts, will be around two or maybe four, that is, that will be the percentage. When they feel fine, it will be around eighty or ten.

Dr. Durel mentioned the much discussed point, or rather his, that a single nucleus or those many nuclei, so far as the practical application to those patients is concerned, it does not make any difference; the fact remains that if you do not see the connection, you will find the neutrophile has a slight evidence of doing the work. When you see those connections, the patient will find himself in a somewhat state of malaise; if you see no cells in which the connection is present, then the patient is not doing so well.

Dr. Tompkins (Nashville, Tenn.): I have to thank Dr. Durel and Dr. Bass for compliments that really belong to the foremost worker in this line, Dr. Sabin. It was she who developed the new technique, that is, the technique of the supravital staining of the blood, so that the work in tuberculosis took on a new lease of life. It was simply the old story of having worked the field out with the techniques at hand, so that a new one came into existence, it showed us new factors.

I think Dr. Durel has brought up a very interesting point, and that is, that actually all of the blood cells are involved in tuberculosis. What that means I think is hard to say; it probably represents the fact that there are many different factors involved and the blood picture is a complex of the responses to these factors. For instance, there is tissue destruction, there is protein, there is fat, and each cell is probably reacting to some special entity in the disease in the way.

In regard to the polynuclear cell, it is a very interesting thing that in the vital stains where we see the cell alive, the nucleus is practically never seen really divided; it will constrict itself and come together again, but it really is always one whole nucleus, and as the cell moves around, you can see the nucleus being whirled and twisted and pulled around with the cell, but it really always remains intact. That is true up to the time the cell disintegrates; at that time, the nucleus becomes swollen, and round, which shows it more definitely to be but one nucleus.

Then in regard to the lymphocyte: It is a very interesting fact that it always does decrease in the extreme stage of the disease. When you correlate that with the fact that people have general-

ly considered the lymphocyte a cause of resistance, and when you think of the fact that glandular tuberculosis is one of the most common forms of tuberculosis in children, where the lymphocytes are very high, and that the guinea pig, in which animal the lymphocytes are also high, is peculiarly susceptible to tuberculosis it seems to me some other point of view in regard to the purpose of the lymphocyte should be considered. At present, we are regarding it, simply for the purpose of a new method of approach, from the point of view that it is an index of the resistance to the disease, and that some toxin, when it becomes prevalent enough, causes a decrease in the lymphocytes and the patient succumbs. That is, it is not a cause but an index of resistance, much in the same way that the anaemia in cancer is an index of failing resistance rather than the cause thereof, and is secondary to the progress of the cancer.

In regard to the third cell, the monocyte, that cell really represents what most people know as the large monocular and traeyitional cells. As the cell moves about the nucleus becomes horseshoe shape, but if you watch it in the vital preparations, in another minute or so the nucleus will become round; these two stages represent one and the same cell. It is believed that this cell may become the well known cell of tuberculosis, the epithelioid cell, that it may ingest but not digest the tubercle bacilli and, that it is an index of the extent of the disease and therefore, increases as the disease becomes worse.

Dr. W. H. Harris (New Orleans): Mr. Chairman, I believe the question of the response of the leukocytes on the part of the host invaded by the tubercle bacillus certainly does form a very interesting study. I think that, in conjunction with the circulatory cell study, the matter of the tissue lesions due to the tubercle bacillus deserves much consideration. We know, of course, that the lesion excited by the tubercle bacillus is particularly of the proliferative and not of the exudative type. The main peculiar formative cell of the tubercle, the so-called epithelioid cell has long been a conjectural cell as to its origin.

I believe the work of Winternitz, some years back, studying with the vital stain method the experimental lesion showed fairly conclusively that this cell was probably derived from the monocyte, to which Dr. Tompkins alludes. In that manner, we would expect that there should be, at times, some increase or prevalence of this cell in the circulating blood. We know, of course, that the circulatory cellular phenomena are merely a criterion to the lesion, that is to say, if for example we have a pneumonia with many neutrophils in the lesion, we find that the blood shows a leukytosis with many neutrophils. We know also that in

both experimental and human tuberculosis that the so-called lymphoid cells respond to a very great extent both locally and systemically. Earlier experiments upon the laboratory animal, wherein applications of roentgen-ray have been applied to the lymphoid structures such as spleen, lymph glands and so on, causing degenerative changes, that the resistance of the experimental animal to the invasion of the tubercle bacilli is greatly lowered, and the animal very quickly develops a lesion.

I feel satisfied that there is very much to be learned from the correlation of the histology and the blood findings, and I feel sure that the recent very promising work of Dr. Tompkins, Dr. Sabine and others will lead us toward some satisfactory conclusions.

Dr. W. J. Durel (closing): Mr. Chairman, if I understood Dr. Tompkins correctly, the observations made of the polynuclear neutrophile cells in blood films stained by the superavital technique, show that the nuclear lobes in the more matured cells seem to separate and reunite, and again separate and reunite as the cells move about in the fluid.

This is probably the most startling evidence I have received in twenty years of the absolute polynuclear nature of some polynuclear neutrophile cells.

That the neutrophile nucleus index is a fact and not a mistaken conception of cellular structure, I am convinced; because, I want somebody to tell me why—if I take a blood smear properly stained with Wright's stain, and I count one hundred neutrophils in the upper or North margin of the film, I will have ninety cells or any other number of cells with a solid nucleus or nuclear lobes connected with isthmus hands. If I count a hundred cells (neutrophils) in the lower or East or West side of the film, I will have the same number of on nucleus cells, or a variance in the percentage of neutrophils with one nucleus, or connected nuclear lobes, of not more than two to four per cent.

If that is the case, the absolute separation of the lobes in the nuclear body is a certainty. Why shouldn't I get a different percentage—ten, fifty, or any other number upon each different count?

No, there is something definite in the neutrophile nucleus index, and I am glad to see that we are getting somewhere in clearing out this question.

I would ask Dr. Tompkins to tell Dr. Cunningham and his co-workers, not to omit the neutrophils, and not to forget the value of the lymphocytes in their cytological studies. We owe a debt of gratitude to these tireless workers for drawing to our attention to the part played by the monocytes in tuberculosis.

Now, if I am wrong in my observations and conclusions relative to the neutrophile nucleus index, then, my whole work of twenty years is void, and all that I have carried out in the tuberculin treatment of tuberculosis is at fault. All my studies in the control of the dosage of tuberculin have not been constructively productive, and it would be left to me to return to the clinical method of giving tuberculin, or to abandon tuberculin therapy altogether.

Fortunately, I am positive that my observations and conclusions are absolutely correct. Why? Follow the neutrophile nucleus index in any case after a positive constitutional reaction to a subcutaneous dose of tuberculin. Such a patient will show a high (96 to 100) neutrophile nucleus index. This increase of cells with solid nucleus or nucleus with connected lobes persistently remains twenty-four, forty-eight, seventy-two hours, and in some very "active" cases two to four weeks. After such a time the neutrophile nucleus index returns to where it was before the tuberculin reaction.

Doctor, there is something to this. It shows that, not only the specific tuberculin protein eliminated from the body of the tubercle bacillus is active in its effects, but that it affects the different cellular elements of the blood in a separate way—acting and calling upon the multiple physiological properties of the blood cells, but not limiting itself to the monocytes and lymphocytes. Tuberculin is a direct stimulant to the function of the neutrophile cells.

I want to say this: All of us who refer to patients with tuberculosis should use the term tuberculous instead of tubercular. Tuberculin therapy has been my hobby for twenty years, and is still my hobby. In conclusion, since I happened to mention the neutrophile nucleus index relative to tuberculin therapy, remember that all individuals who harbor in their body tuberculous foci, or have for sometime tubercles that are not properly walled in by fibrous tissue, are constantly throwing into the blood circuit and body tissues, a variable amount of tuberculin-protein formed in the foci of infection.

The very fact that the neutrophile cells are the first to respond to the call for the protection of the body's tissues against invasion by the tubercle bacilli, has always been an interesting feature to me.

In the local reaction following the intracutaneous injection of tubercle solids, the local vesicular papule shows upon examination a great preponderance of neutrophile cells, and a small number of lymphocytes and monocytes.

I have repeated this test in the last few weeks to see if my previous observation was correct,

and repeatedly found the neutrophile increased after a local reaction to the intracutaneous administration of tubercle solids.

That an inflammatory reaction takes place about the tuberculous foci when a constitutional reaction to tuberculin occurs, or when tuberculin-protein is absorbed from the lesions in the blood circuit (either from over exercise or other cause) is a very interesting clinical observation.

It is through such reactions to tuberculin that the tuberculous individual improves and gets well—because through the phagocytic power of the neutrophiles, we can but increase the healing of the tuberculous lesions.

The neutrophiles comprise your regular army corps, and are the first body cells to respond when new lesions are about to form. The lymphocytes form the reserve corps, and complete, with the action of the fixed tissue cells, the fibrosis necessary for a cure. The monocytes (according to personal observations) being also increased in number during the height of a tuberculin focal and constitutional reaction must play a part in the combat for supremacy between the tissue cells and the destructive effects of the tubercle bacilli.

Therefore, through some specific ferment, whether it be a fat ferment of the lymphocytes, or something else that stimulates the various blood cells in a different way, the work of neutralizing the tubercle poisons, and of the construction of destroyed tissue takes place chiefly through the action of the neutrophiles, with the secondary effect of the lymphocytes and other body cells.

Bear in mind that all tuberculous have in their body, tuberculous foci that are susceptible to reaction from tuberculin, and that these reactions when not too severe and too often repeated, are of great value in the cure of tuberculosis. Remember that all tuberculous eliminate tuberculin-protein from their lesions, and if these eventually get well after rest and well graduated exercise, it is because of the stimulating effect of the tuberculin-protein upon the blood and tissue elements of the body.

As for the use of cultural tuberculin in a very "active" case, or one already absorbing too much tuberculin-protein from his lesions, it is preposterous to believe that it can do any good. Such a patient is already having all the tuberculin-protein that he can handle, and the additional administration of tuberculin can but prove disastrous.

Place such a case under absolute and rigid rest until all signs of activity have disappeared, and give him the benefit of his own made tuberculin.

When the time comes that a patient does not form enough tuberculin-protein to keep up the stimulation of the neutrophiles, then, the administration of cultural tuberculin is advisable—the bacillus emulsion five milligrams of dry tubercle solids to each c.c. (Parke, Davis Co.) is used with good effect when the intervals of doses and increase of doses are guided by the fluctuation of the neutrophile nucleus index.

At the Charity Hospital we have had few opportunities and facilities to do this work, for we have not had the required assistance. Through the courtesy of Dr. Philip Jones we have carried on some few very interesting cases.

Finally, another fact that I would like Dr. Tompkins to think about, is "Why is it that, if I give a tuberculous patient a reactive dose of tuberculin today it will take from two to three weeks, in most cases, for the neutrophile nucleus index which has risen during the reaction, above ninety-four—to return to the previously low index present before the reaction?"

If this could be explained to me and made clear, I would be perfectly satisfied.

ENDOCRINE INFLUENCE ON GASTRIC SECRETION WITH SPECIAL REFERENCE TO HYPOTHYROIDISM.*

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The unknown has always been an inviting field for speculation and investigation by those with an inquisitive turn of mind, and probably no field of medicine is today the subject of more investigation or speculation than is that of endocrinology. The trend of opinion is reflected in one of the recent "best sellers" in which the hero in a fit of dejection trying to analyze himself says that "the appendix used to be the fashion. Now it is the glands. Everything depended on your endocrine system. He and Shelley had had the same headaches, because they had too much juice in them of one kind and not enough of another. Dreams, heart-throbs, logic, all a question of juices."⁽¹⁾ Any effect that endocrine glands may exert on the human mechanism

is usually accomplished through the autonomic nervous system. According to Langley⁽²⁾ this system is made up of two groups of nerves which he calls the para sympathetic and the sympathetic. More recent observers designate these groups from their anatomical associations as the bulbo-sacral autonomic and the thoracico-lumbar autonomic.

The diagram taken from Gaskell illustrates the different arrangements of the internuncial neurons of the voluntary and autonomic nervous system. "In both systems the afferent fibers terminate (by collaterals) around a cell of the gray matter of the cord. In the voluntary system this cell is situated in the posterior horn, and its axon travels to an anterior horn cell. In the autonomic system, this cell is located in the lateral horn, and its axon leaves the horn by the anterior root and travels by the white ramus into a sympathetic ganglion where it connects with a nerve cell whose axon forms the post-ganglionic fiber."

"The bulbar outflow consists of connector fibers lying chiefly in the vagus, but also in the third, seventh, ninth and eleventh cranial nerves. The sacral outflow consists of fibers leaving the cord with the second to fourth sacral nerves, which join to form a common nerve trunk (the pelvic nerve or *nervus erigens*) on each side. Because they have certain characteristics in common these two outflows are classed together as the bulbo-sacral division of the autonomic nervous system, by some referred to as the parasympathetic. The thoracico-lumbar outflow consists of connector fibers leaving the cord between the first thoracic and second or third lumbar segment. This outflow is sometimes called the sympathetic division of the autonomic nervous system."

Eppinger and Hess⁽³⁾ believe that both these portions of the vegetative or involuntary nervous system are controlled by the endocrine system. The two groups of

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nerves are more or less antagonistic and by their combined action maintain the body in a state of tonus or equilibrium. Their action below the diaphragm is explained by Macleod as follows: "In the gastro-intestinal tract all parts cephalad of the ileocolic sphincter are innervated by the vagus and other cranial nerves, and are replaced below this point by the sacral outflow. At the same time the thoracico-lumbar outflow supplies this entire tract below the cardiac part of the stomach with fibers which act upon it in the opposite sense. The action of the bulbo-sacral outflow on the gastro-intestinal tract is excitatory except for the ileocolic and internal anal sphincters which are inhibited. It consequently favors the movement of food along the digestive tract and the secretion of the digestive fluids of the pancreas and salivary glands and the emptying of the gall bladder. The thoracico-lumbar outflow, on the other hand, tends to diminish the activities of the gastro-intestinal muscles and of the salivary glands and to close the sphincters of the lower tract."⁽⁴⁾

While definite knowledge concerning the complete mechanism of gastric secretion is lacking, enough is known to appreciate the governing influence of the autonomic system through the vagus distribution. The early work of Pavlov⁽⁵⁾ demonstrated the control of the vagus over the psychic or appetite juice, sometimes referred to as the "ignition juice," so called because by producing partial digestion it serves to ignite the process of gastric secretion.

Popielski⁽⁶⁾ has shown that after complete section of the vagi, secretion in the stomach continues and suggests that this is accomplished through the activity of the intrinsic nerve supply of the stomach, the plexuses of Auerback and Meissner. More recent work by Edkins,⁽⁷⁾ Lim,⁽⁸⁾ Luckhardt and Ivy,⁽⁹⁾ however, show that the continued secretion is the result of a hormone-gastrin, which is formed as long as there is present in the stomach any half-digested food. Macleod states that the

instant response noted in the production of the appetite juice indicates its nervous control, while "in the latter stages of gastric digestion, such promptitude in response on the part of the gland is no longer necessary, so that the slower, more continuous process of hormone control is sufficient."

This rather brief reference to the nervous control of the gastric secretion shows conclusively its dependance on the autonomic system. It is logical then to assume that disturbance in the autonomic system, referred to by Kessel and Hyman⁽¹⁰⁾ as autonomic imbalance, would influence in varying degrees the gastric secretion. This balance or tonus is maintained, as previously stated, by an equalization of excitator and inhibitory factors, but no absolute knowledge is had as to just what constitutes these factors. Kessel and Hyman⁽¹¹⁾ consider an imbalance of the autonomic system as a diathesis which may be influenced by focal infections, psychic trauma or sex epochs. Notwithstanding the statement referred to above of Eppinger and Hess⁽³⁾ relative to the control of the autonomic nervous system by the endocrine glands, or the work of Asher and Flack⁽¹²⁾ or Cannon and Levy,⁽¹³⁾ who attempt to prove that thyroxin stimulates the autonomic system, Kessel and Hyman state that thyroxin is without effect on the involuntary nervous system and disclaim the proof of any scientific data showing that the ductless glands participate in any manner in the production of autonomic imbalance. They also state hormone therapy is without foundation and practically useless in this condition.

This confusion of theories and divergent views relative to the endocrine control of the autonomic nervous system is also manifest in a review of the literature on gastric secretion in certain definite endocrine diseases and especially so in the hypothyroid state.

CHART I.
HYPOTHYROIDISM (Lockwood)

Patient	Basal Metabolic Rate	Gastro-Intestinal Symptoms	Gastric Acidity	Roentgen-ray Findings
1	-13	Ulcer syndrome Constipation	F 25 T 35	Duodenal ulcer
2	-15	Constipation	F 0 T 37	Marked rectal and general colon stasis
3	-18	Moderate constipation Enteroptosis	F 0 T 18	Ptosis, cecum and transverse colon; cecal and rectal stasis
4	-18	None	F 20 T 40	Not done
5	-20	None	F 0 T 20	Not done
6	-28	Severe constipation right first quadrant	F 0 T 10	Cecal stasis—chronic appendicitis
7	-15	None	F 35 T 50	Not done
8	-18	Pain in lower abdomen, constipation, pelvic inflammatory disease	F 15 T 25	Cecal stasis; rectal stasis
9	-35	Constipation alternating with diarrhea mucus in stools at intervals	F 0 T 12	Negative
10	-15	Moderate constipation	F 0 T 35	General colonic stasis

Sturgis⁽¹⁴⁾ reports an achylia in three of five cases of myxedema in which gastric analyses were made. One case showed a low acidity and the other a normal acidity. Lockwood's⁽¹⁵⁾ results, (Chart I) show an achlorhydria in six out of the ten cases which he reported. Rehfuess⁽¹⁶⁾ states that "the evidence is not sufficiently constant to warrant the assumption that this condition is accompanied by a definite change in gastric function, but what evidence there is would lead us to believe that the general tendency is toward a reduction in the gastric secretory output."

It is difficult to accept these conclusions in the light of the work by Katz,⁽¹⁷⁾ who reported several cases of hyper-acidity in myxedema cured by thyroid administration, or the work of L. J. Hardt,⁽¹⁸⁾ who fed thyroid to patients and noted a resultant depression of gastric secretion and acidity. Schnabel⁽¹⁹⁾ reports some cases of achylia made worse with thyroid treatment.

There seems to be some unanimity of opinion regarding the occurrence of achlorhydria in hyperthyroid states. Lockwood,⁽¹⁵⁾ King,⁽²⁰⁾ Moll and Scott,⁽²¹⁾ all reporting such findings in a majority of the cases studied by them. Sajous,⁽²²⁾ however, states that excessive thyroid secretion causes an increase of the gastric secretion with a hyperchlorhydria. Moll and Scott⁽²¹⁾ advance four explanations for the occurrence of hypochlorhydria in Graves' disease. (1) "There is a constant tendency toward a subnormal or absent secretion of hydrochloric acid in Graves disease. (2) The secretion of hydrochloric acid in cases of toxic adenoma and puberty hyperplasia is usually normal or subnormal, but never absent. (3) There is a strong tendency to regurgitation of bile in Graves' disease. (4) The stomach empties rapidly in Graves' disease."

If we accept the conclusions of the above mentioned investigators, that hyperthyroid states are associated with a decreased

secretion of hydrochloric acid by the stomach the corollary conclusion would be that hypothyroid states are associated with an increased secretion of hydrochloric acid by the stomach. A tentative explanation for this hypothesis suggests itself that, if in hyperthyroid states there is a stimulation of the autonomic system as a whole resulting in a hypermotility of the gastro-intestinal tract and decreased hydrochloric acid secretion, in the opposite condition of myxedema we should naturally expect to find a slowing of muscular activity in the gastro-intestinal system and an increase in the secretion of hydrochloric acid.

That slowing of the muscular activity does occur in hypothyroid conditions is a common observation as evidenced by the chronic constipation which is a constant accompaniment of this condition. In the cases to be reported it is shown that an increase in the hydrochloric acid also occurs.

Macleod also explains that "innervation of the smooth muscles and glands is peculiar in that each effector may be acted upon by two neurons which affects its activity in opposite ways. Impulses from one neuron tend to increase the secretion of these glands, or augment the tone or degree of contraction of the smooth muscles, while impulses from the other neuron set up changes in the other direction which inhibit or depress these activities." It is also possible that in hyperthyroid states the secretory fibers in the vagus are depressed and in hypothyroid states they are excited. Certainly until more exact information is available we can only continue to theorize.

For an exact diagnosis of myxedema the basal metabolic rate is an all essential requirement. In well marked cases, however, the occurrence of a non-pitting edema with a dry, scaly alabaster-like skin, hair that is dry and brittle, with scanty public and axillary growth, slow pulse and a constant

feeling of chilliness makes the diagnosis fairly certain without the aid of a basal metabolic determination.

Hertoghe⁽²³⁾ first called attention to the incomplete form of myxedema, more difficult of diagnosis, which he designated as chronic benign hypothyroidism. It is this type of case which is presenting itself in increasing numbers to us for diagnosis and treatment, complaining of a bizarre assortment of symptoms, prominent among which is the all embracing term—dyspepsia.

If carefully examined these cases nearly always show some thinning of the eyebrows in the outer third, a dry or scaly skin, scanty pubic and axillary hair, a waxy color of the skin below the eyes with or without a real edema and a low basal metabolic rate and a marked susceptibility to cold. No single finding should be depended upon for a diagnosis and in the interpretation of the basal metabolic rate the patient's clinical signs and symptoms must be considered.

Our experience supports the statement of Dowden⁽²⁴⁾ "that in the period of time represented between the first injury to the thyroid function and the disease entity known as myxedema there must be a great diversity of symptoms and signs varying in degree as the thyroid changes progress."

Many cases are seen presenting few or many of the signs and symptoms referred to above in whom the basal metabolic rate is between a minus 10 and 15 per cent. By some observers these are considered normal readings but because of the association of other hypothyroid signs and symptoms and the happy result of thyroid therapy these cases are classed as mild or chronic benign hypothyroidism.

Chart II shows the results of our studies in a few of the cases observed. The basal metabolic rate varies from a minus 13 per cent to a minus 25 per cent, and in all except one case there is a more or less definite hyperacidity.

CHART II.

Patient	Basal Metabolic Rate	Gastric Acidity: Ewald Meal	Remarks
1	-18	F 22 T 38	Female—Age 30—Obese—Scanty Menstruation—No Resistance
2	-13	F 55 T 68	Female—Age 53—Post Menopause—Weak—Nervous
3	-22	F 40 T 68	Male—Age 47—Impotent
4	-22	F 56 T 81	Male—Age 42—Hyperacidity—X-ray Negative. M.
5	-25	F 54 T 93	Male—Age 19—Neurosis
6	-21	F 22 T 41	Female—Age 26—Ulcer Syndrome
7	-14	F 20 T 40	Female—Age 44—Indigestion
8	-20	F 67 T 98	Female—49—Renal Diabetes
9	-20	F 43 T 50	Female—Age 34—Obese—Irritable—Indigestion
10	-22	F 0 T 27	Female—Age 32—Icthyoid Skin—Early Menopause

Case 10 is included to show that occasionally we do observe some cases of achlorhydria in hypothyroidism. Case 4 is interesting because of his family history. His mother has had a nontoxic adenomatous goiter for years, and he has a daughter with an ichthyoid type of skin. He has been a sufferer from hyperacidity for years, a fractional examination showing at one period of the test a free hydrochloric acid of 87 and a total acidity of 115. Roentgen-ray examinations have always

been negative and there has been no symptoms present other than the hyperacidity.

Chart III is presented to show the results of thyroid medication in two cases of frank myxedema presenting a hyperacidity. While there is apparently no improvement in the basal rate of case 8, after treatment, there was a marked improvement in both signs and symptoms. This case was referred by a dermatologist for

CHART III.

CASES 8 AND 9 SHOWING EFFECT OF THYROID MEDICATION

Patient	Basal Metabolic Rate	Fractional Analysis Gastric Contents				
		Fasting	30 Minutes	60 Minutes	90 Minutes	
8	-20	F 26 T 118	F 67 T 98	F 17 T 87	F 22 T 50	Before Treatment
	-25	F 0 T 16	F 2 T 24	F 8 T 10	F 14 T 30	After Treatment
9	-20	Fasting		45 Minutes		
		F 49 T 71		F 43 T 50		Before Treatment
	-16	F 0 T 15		F 28 T 62		After Treatment

a general examination because of a dermatitis which resisted all treatment. Under thyroid extract this dermatitis disappeared with the improvement in her general symptoms.

Case 9 shows clearly the improvement in both acidity and basal metabolic rate. The chief complaint of this patient was a persistent vomiting occurring almost daily. This disappeared under treatment.

A comparison of Lockwood's findings, as shown in Chart I with Chart II of our series, accentuates the opposite results which we have obtained.

In summarizing we can state, (1) That there is no definite explanation of gastric secretion possible in the light of our present knowledge.

(2) The autonomic nervous system is most probably the controlling factor in gastric secretion.

(3) Because of the divergent views no definite conclusions can be determined as to the effect of autonomic imbalance on gastric secretion.

(4) Cases of definite hypothyroidism have been observed with a hyperchlorhydria, and two cases are reported in whom the hyperchlorhydria was relieved by thyroid medication.

CONCLUSION.

To attempt to draw any conclusions after the study of only a few cases is obviously impossible, especially when we consider the other views referred to. However, from the observation of the cases reported together with a number not included in the report, the impression is gained that chronic benign hypothyroidism and myxedema are associated more frequently with an increase of hydrochloric acid in the gastric contents, than with a decrease, and under the usual medical treatment definite improvement in the gastric findings are obtained.

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DISCUSSION.

Dr. E. L. Eggleston (Battle Creek, Mich.): I do not know that I am competent to discuss gastric secretions from an endocrine standpoint. I was not impressed that the endocrines were a very great factor in disturbing the secretion. In the hyperthyroid states we very frequently have hypermotility of the gastro-intestinal tract and diarrhea is not an infrequent symptom. In hypothyroidism we are very apt to have constipation. In cases of achlorhydria, we frequently observe a hypermotility and sometimes a diarrhea. Judging from those analogies, we might think that in the hyperthyroid states we would expect an achlorhydria; in the hypo states where we have a constipation we might expect a hyperacidity. I am not certain that such conditions obtain. I am not sure, after listening to Dr. Levy's paper, that he has definitely concluded they obtain. Achlorhydria is a rather peculiar condition supposedly a congenital condition in the majority of cases; nevertheless, we do have it as a terminal finding in many of the wasting diseases; we have it also in gall bladder disturbances, particularly with cholelithiasis, whether a factor in the production of the gall stones or an effect, I do not think has been definitely determined. We have it in cases of primary anemia, and again in this condition we do not know whether it is a cause or an effect. Hurst

of London studied a considerable number of the relatives of primary anemia cases, and would conclude that it is rather a familial condition.

The paper of Dr. Levy has been very interesting and I am very glad indeed to have had the pleasure of listening to it, but I will say in conclusion that I am still of the opinion that the endocrines have no very great effect in producing hyperacidity, or, on the contrary, an achlorhydria.

Dr. Clyde Brooks (Tuscaloosa, Ala.): If you are short of discussion, I might offer a few words. I feel, as some of the other speakers, very inadequately prepared to discuss a paper of this kind. But I do appreciate the effort that Dr. Levy has made here, to associate the changes in gastric secretion with the endocrines. It seems that he has not definitely drawn his conclusion, but he points out the possibility that we may look for it.

The first piece of research which I tried to do, was a repetition of Professor Pawlow's work on the gastric fistula. Studying the secretion in this way brought out the importance of the psychic secretion; the "appetite juice," and so forth. Furthermore, I was working in the laboratory at the University of Chicago when Luckhardt and these other men performed these experiments on gastrin, I am very much impressed with the fact that gastrin seems to be a definite hormone which will stimulate gastric secretion. In other words, that seems pretty well established.

I am doubtful about the effect of the endocrines on the secretion of acid in the stomach. However, this paper has called our attention to this possibility, and we can be on the lookout for it, to see whether clinical experience agrees with this theory.

Dr. J. H. Musser (New Orleans): I appreciate very much indeed the opportunity of hearing Dr. Levy's paper. I want to thank him personally, very much indeed, for letting us hear this very interesting presentation of his.

The same thought occurred to me as occurred to the other discussors, as to whether it was the endocrines that were primarily disturbed, if they were responsible for this condition which he has described. I am free to confess I am a little dubious about it. However, I think it would be a very nice little experiment, sometime, Doctor, to work upon some dogs and see what happens, whether there is any distinct relationship between the two general systems.

Dr. Moise D. Levy (closing): I want to thank very much the gentlemen for discussing the paper, and I think a word of explanation should be had. The selection of the title of this paper would probably have been better, instead of "The

Effect," the "Association of Endocrine Function on Gastric Section, with Special Reference to Hypothyroids." I am of the same opinion as expressed by Dr. Eggleston and Dr. Brooks and Dr. Musser, that there is no definite proof that the hypothyroidism is the effect; or causes of this condition, but the fact the association was forced on my attention by the repeated occurrence of cases with these mild hypothyroid symptoms.

The suggestion Dr. Musser has made, as to the experimental work, is certainly one that, if possible, we will try to carry out. That requires rather an extensive scheme to carry through properly. Thank you very much.

THE USE OF FOOT-PRINTS AND FINGER-PRINTS AS IDENTITY RECORDS IN THE MATERNITY*

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The maternity is compelled to employ some device to establish the association of each infant and mother. Natural parental feeling insists upon assurance that this device is infallible. It is self-evident that the hospital and its staff benefit jointly with parents and children in the protection afforded by an adequate method of identification of the new-born. The recent Cleveland episode illustrates forcefully how disturbing are the consequences of substitution or even suspected confusion of infants.

Different maternities follow varied practices in their effort to obviate disassociation. DeLee⁷ outlines in detail the method finally adopted in the Chicago Lying-In Hospital, pointing out that its trustworthiness lies in the combination of several checks on identity. Among the records are included foot-prints of the infant, concerning which there is but little explanation. The present account, dealing solely with print-records, is presented with the thought that it may be of service to

*Presented before the Baptist Hospital Staff, New Orleans, March 13, 1928.

†From the Department of Anatomy, Tulane University.

those who contemplate the introduction of revised methods. Attention is directed to the unique advantages of prints as supplementary aids in identification, and the technical aspect of their use is briefly discussed.

Reference should be made to DeLee's account for a discussion of the special problems of identification in the maternity. DeLee justly stresses the point that "perfect safety lies in making the operation of identification automatic and, as far as possible, independent of the necessity of human forethought". This principle should guide the organization of any method of identification, however its details may be elaborated. The following features may be noted as important requisites.

1. The method must be adapted to the conditions of the delivery room, so as to allow immediate record of the items distinguishing the association of the two identities.

2. It must provide some marks of identification which are constantly and readily accessible in the nursery, in order that the daily routine introduces no confusion of infants.

3. Its operation must be convincingly dependable, so that parents and staff are assured of correct identification. The proof of correctness must be available at any period during the stay in the maternity or thereafter, and fitted to serve as evidence in the event of litigation.

THE SPECIAL SERVICE OF FOOT-PRINTS AND FINGER-PRINTS.

Prints of the skin patterns, properly recorded, provide distinguishing marks which cannot be prejudiced by mischance in the procedure of identification. It is true that they fail to perform the entire service which is required by the regime of the maternity, for which other marks are necessary, such as attached tags, tapes, necklaces, etc. The baby's foot-prints and maternal finger-prints, as described below, are but supplementary to the use of these

devices, the peculiar value of the prints being that they are available to validate or correct the operation of artificial signs.

It is well known that finger-prints, the impressions of the epidermal ridge configurations borne by the distal phalanges, are widely used in individual identification. Finger-prints owe their usefulness as marks of identity first of all to the infinite variety of the integumentary features. The epidermal ridges are fashioned into diverse patterns, and the total variation is tremendously increased by the occurrence of many variable features in the single ridges. So great is the variation that students of the subject do not hesitate to affirm that each finger-print is a unique specimen. Differences among individuals are correspondingly increased when one considers the entire series of finger-tip patterns. The characters in which variability is expressed are of proven permanence. Herschel carefully compared his own finger-prints made at the age of twenty-six years and at the age of eighty-three, without detecting any change in even the most minor detail. There are other similar comparisons in the literature which, though covering shorter periods of time, agree in demonstrating permanence.

The toes display patterns which are homologous to those of the fingers and of the same fundamental construction. For obvious reasons these patterns have not been exploited in individual identification. The palms and soles, however, are readily accessible for the making of prints. Their configurations of epidermal ridges, like finger-tip patterns, are highly variable. While direct proof is yet wanting, there is cause to believe that the palmar and plantar configurations are likewise unchanging. There has been, accordingly, considerable interest in these regions from the standpoint of use in identification. Foot-prints form the only feasible record in the case of the infant, owing to technical difficulties in making satisfactory impressions of the finger-tips and palms.

No benefit can be derived from the record of the infant's foot-prints unless the identifying signs attached to them are dependable. It is a common practice, apparently, to rely upon the inscription of the name, an identifying number and such data. But the record is greatly enhanced in value with the addition of the mother's finger-prints, as described by Robinson².

In the Maternity Department of St. Mary's Hospital (Detroit) it is the custom to add prints of the first three fingers of the mother's right hand to the foot-print card. This operation, if performed in the delivery room before there is any chance of confounding different mothers and infants, provides the most cogent association. It conforms precisely to the requisite of safety, being a simple mechanical performance which involves no forethought in the entering of identifying marks. Such a record, even lacking further additions, is a sufficient proof of the associated identities of mother and infant. The application of a name or number is simply a practical convenience. Should the occasion arise that the identity of an infant is questioned, perhaps through loss or illegibility of a tag, it is only necessary to compare newly-made prints of the mother and infant with those recorded at the birth. Even with complete confidence in the successful operation of attached identification marks, such as name or number, a check of their accuracy might well be introduced as a routine of discharge. If spaces are provided on the print-record sheet, the prints may be repeated at this time for comparison with the originals. There is thus incorporated in the permanent file a definite proof that each mother leaves the hospital with the child born to her.

Should the identity of an infant be made the object of legal issue, the parents contending a substitution in the maternity, no more convincing evidence for the defense could be presented than the infant-maternal prints. These prints, registered on a single card under conditions which make the association an automatic record, cannot be

falsified. Readers interested in the legal status of prints as a means of personal identification should consult the compilation of illustrative cases by Taylor³.

It must be emphasized again that the prints are only an adjunct to the ordinary means of associating the mother and infant. Their importance will increase or diminish in accordance with conditions in the maternity, depending upon population and the efficiency of other aids. In systems which are less well ordered than that described by DeLee, and even though the maternity be considerably smaller, the prints become increasingly serviceable, being at hand to establish the association when an error in the attributed marks is disclosed or suspected.

THE TECHNICAL ASPECT OF FOOT-PRINTS AND FINGER-PRINTS.

Attention may be first directed to the process of making the prints. Two requirements must be fulfilled. The necessity of immediate action has been mentioned; it is obvious that they must be obtained before the mother and infant are disassociated. Furthermore, the prints must be clearly decipherable. To secure satisfactory prints is by no means difficult, though the person to whom the duty is assigned should be practiced sufficiently to appreciate the desired standard. The following paragraphs outline the technique of printing and the materials required for the process. It will be noted that the necessary supplies are few and inexpensive and that the operation is simple.

Supplies—(1) A slab with a smooth, non-absorbent surface, such as a glazed tile, a piece of glass suitably mounted in a frame or a strip of sheet copper tacked perfectly flat to a board. This slab is to be used to distribute ink in a thin, uniform film. For greatest convenience, its surface should be sufficiently large (e.g. about 6x10 inches) that the three prints made at each delivery may be made from a fresh ink surface, undisturbed by previous contacts. If the slab be of the suggested size the ink film spread prior to the delivery

requires no further manipulation. With too small a slab, the ink must be re-rolled after each contact to prepare a fresh surface for the next impression.

(2) A roller for distributing ink. The rubber rollers obtainable in photo-supply stores are satisfactory.

(3) A small supply of black mimeograph ink or printers' ink.

(4) Paper on which the prints are to be made. The clearest prints are obtained with a slightly glazed surface. It is preferable to provide printed forms with blanks for the insertion of name, sex, identification number, etc.

(5) A history-sheet clamp, with a smooth back against which the paper will be supported in printing.

Procedure—(1) Prints of both feet of the new-born infant are to be attached to the sheet, together with the four fingers of the mother's right hand (extended and printed all in one operation). There are, therefore, three impressions to be made, each according to the directions following.

(2) Spread a thin film of ink over the slab, rolling it until evenly distributed. A little practice will demonstrate the optimum quantity of ink. There should be just enough that the fine ridges of the skin appear distinctly in the prints. The danger lies more especially in the direction of applying too large a quantity, in which case the resulting print is lacking in the desired detail.

(3) Wipe the infant's soles clean and dry. Apply each one first to the ink film and then to the paper, using care to avoid dragging the inked surface against the paper. With the paper backed by a smooth, rigid support, and if the foot be placed directly upon it and then removed without dragging, the ridges will appear clean and sharp. It often happens that a second print, made without re-inking the sole, is superior to the first one, usually owing to an initial excessive amount of ink. There

is no objection to adding duplicate impressions on the record sheet.

Hold the mother's right hand with the four fingers extended, and apply them to the ink film and paper with the same precautions to secure clear prints.

Wipe the ink slab and roller after each delivery; otherwise dust will adhere to the ink and impair the quality of subsequent prints.

Having prepared print-records, the next technical question involves their filing. In the most familiar application of finger-prints, that of the police bureaus, circumstances require an elaborate system of classifying and filing. By means of this system, a desired record may be located readily whenever necessary, for instance to determine whether an apprehended criminal has a prior record in the file. The classification and filing allow the location of the record or furnish proof of its absence on the impartial evidence of the finger-prints alone, independent of any reference to other physical traits, name or statements of the individual. Both Robinson and Montgomery insist that the prints of the maternity should be classified, as finger-prints are classified in police bureaus, and filed in accordance with this classification. Methods of classifying foot-prints have been devised, and if desired the classification may be employed for the filing of prints in natural sections. In this connection, I desire to correct an erroneous impression conveyed in two publications of Montgomery.^{5,6} Montgomery assumes that my rather elaborate formulation of sole-prints⁴, constructed as a descriptive record for certain detailed morphological studies, was designed as well to guide the classification of prints. The method is quite unsuited to this use, as Montgomery points out; its actual purpose is expressly stated in the original publication.

Notwithstanding the existence of practicable methods of classification, and contrary to the position taken by those who recommend adoption in the maternity, the

present writer sees no benefit to be gained from a classified filing. There are doubtless some maternity directors who are misled by the emphasis on a classified filing, being deterred from introducing print-records on the score that they entail a regulation identity bureau. As a matter of fact, a filing of the records in chronological sequence meets the only real demand of the maternity. The sole argument which may be advanced in favor of classifying the prints is that this arrangement provides for possible emergencies of future years, wherein the identity of the individual is in question, apart from any responsibility of the hospital. It is argued that the classified filing will assist in the identification of unknown persons. Hospital files cannot be generally serviceable in this regard unless they are maintained with the usual facilities of an identity bureau, including arrangements for co-ordination with other agencies. The hospital records may nevertheless prove to be of occasional importance in instances where it is desired only to verify an identification. In these instances the name of the individual, birth date and place of birth would be known or determinable. The print-records in such a case could be located in the files no less readily with a chronological filing than with elaborate classification.

To illustrate the comparative operation of classified and chronological filings let a case be assumed as follows. Mr. and Mrs. A appear at the hospital with an infant, contending that it is not their own, that a substitution was effected at Mrs. A's confinement, days, weeks or months previously. Prints are now made of Mrs. A's fingers and of the baby's feet for comparison with the original record. If the file is classified the next step is the classification of these new prints, to direct the location of the original prints in the file. If the file is arranged chronologically it is simply opened to the birth date of the A infant, when the print record is readily located by the name inscription. In either case the original and the new prints are

carefully compared. If they are found to agree the identity is established beyond doubt. If, on the other hand, the prints of the disputed infant differ from those on Mrs. A's filed card, while Mrs. A's finger-prints agree, she was certainly tendered a baby other than her own. In a classified file the maternity of this baby will be disclosed by the data on the card bearing its prints, which are quickly located by the classification, while in a chronological file a brief search through the cards entered during the period of Mrs. A's stay will be necessary to find prints duplicating those of the baby in question. Regardless of whether the cards are classified or filed chronologically, the directions of search for Mrs. A's own baby are indicated only by the registries of babies with which confusion might have occurred. The search will be progressively narrowed by elimination, as prints of the infants are compared with those of Mrs. A's card. It is apparent, therefore, that classification of the prints does not facilitate the solution of cases of real or imagined confusion.

There remains one technical question regarding the print-record files, namely, that of the training which is necessary for competence in the comparison of prints. When reference to the prints is required some person who is familiar with the pattern details should be available to make the comparisons. A manual such as that of Wilder and Wentworth¹ forms a useful text for self-instruction; an intelligent and observant individual should be able to acquire a working knowledge of the subject through its study and practice with prints. Exceptional cases, especially those calling for testimony in court, may demand the service of an accepted expert. It may be mentioned that over four thousand banks have installed systems of finger-print identification. These systems recognize that relatively little training suffices to qualify the bank employee for their operation, which involves simply the direct comparison of prints as in the foregoing scheme suggested for the maternity.

SUMMARY.

(1) Sole-prints of the infant and finger-prints of the mother form an invaluable supplement to the usual aids in associating mother and child in the maternity. Being registered on the same sheet before the two are disassociated, the operation of identifying tags or other devices may be checked at any time, and as an absolute guaranty the prints may be repeated and compared with the originals when the mother and child are removed from the hospital.

(2) The making of prints is simple and not time-consuming.

(3) A filing of the prints in chronological sequence satisfies any need for reference. It is unnecessary to classify these records otherwise (as finger-prints are classified in police bureaus).

(4) The ordinary operation of the system does not require the service of a trained "finger-print expert".

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A MONUMENT TO MEDICINE—Dr. Samuel W. Lambert, in his address at the dedication of the Medical Center, described this monumental group of tall buildings as "a veritable Tower of Babel"—in view of the variety of scientific languages to be spoken there. Its significance, as was again emphasized at the dedication, is that it is devoted to the "trinity of medicine": the care of the sick, research and teaching. This is not by any means unique, but never before have the three services been co-ordinated in one institution on such a scale and with such endowment and equipment. Even so, it is not as yet complete, and will not be till every specialty of medicine and surgery has not only its dispensary but also its wards for the care of patients, and until provision is also made for dormitories and a common dining-hall for the students of medicine.—Quoted from Science, 68:380, 1928.

THE TREATMENT OF VARICOSE VEINS BY INJECTIONS OF SCLEROSING SOLUTIONS*

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AND

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A non-surgical method of treatment of varicosities of the lower extremities is desirable because (1) of the resulting disability, especially among the laboring classes; (2) of the loss of time incident to hospitalization in cases in which surgical treatment is instituted. With this idea in view we were prompted to make a study of the injection treatment. After convincing ourselves of its value we adopted the method in the treatment of our cases in the clinic at Charity Hospital and, later, in private cases.

In 1858 Chassaignac used iron perchloride in three minimum doses to obliterate varicose veins. While satisfactory results were obtained in some instances, the method soon fell into disrepute by the unpleasant complications. Other pioneers were Vallette, who in 1875 used a solution of iodine and tannic acid with some success; Tavel, who in 1904 recommended the use of five per cent phenol; Borcherd, who in 1910 used arsenical preparations on the assumption that all varicosities were luetic.

Credit for bringing this new treatment before the profession on a practical basis is given chiefly to the French. The names of Sicard, Gaugier, and Genevriar are pre-eminent. Forestier and Douthwaite must also be given much credit for their work.

The etiology of varices, or phlebectasis of the lower extremities, is varied, and often no one well defined cause can be found. Ashurst⁽¹⁾ suggests gravity as an

*Read before the Surgical Staff meeting, Baptist Hospital, November 14, 1928.

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important factor; McPheeter⁽²⁾ explains them on an obstructive basis:

- (a) As tight bands, most commonly at the knee;
- (b) Mechanical interference with the returned flow of blood in the pelvis from pregnancy, constipation, tumors, etc.

Occupation apparently plays an important role, as varicose veins are more frequent in individuals who remain on their feet for long periods each day, as barbers, waiters, store clerks, motormen, and the like. Heredity, endocrine dysfunction, and the existence of a varicose diathesis have been considered.

The pathology in these dilated tortuous veins is found in their walls. Here there is a weakening from the degeneration of the fibrous and muscular tissue; a thinning of the walls, and at time some sclerotic patches. The increased tension on the nerve terminals in the skin from these large veins probably causes the pain which these patients experience, and forces them to seek treatment.

While normally the flow of venous blood in the leg is from the superficial to the deep veins, in varicose conditions there is a reversal of this flow, due to incompetency of the valves in the communicating branches between these sets of veins. Jentzer, using the radiograph and injecting strontium bromide, and Magnus, by means of a hemodrometer, have shown that when the leg is in a vertical position or is raised to an angle of 45 degrees the flow of blood in the superficial veins is centrifugal; and when the leg is horizontal the flow is either stationery or that toward the heart is slower than a centrifugal stream when the leg is vertical (Forestier). The valves in the communicating veins being incompetent, the blood now flows from the deep to the superficial veins. Magnus has also shown that there is a reversal of blood flow in the skin capillaries of the leg. This leaves the extremity with a very abnormal

circulation, as evidenced by tracing the course of blood centrifugally in the superficial veins being supplemented throughout its course by blood coming from the deep veins and passing through incompetent valves, reaching the deep veins in the foot, either through skin capillaries or through the communicating veins, and that which reaches the level of the fossa ovalis may return again to the superficial circulation. The result of this is that the nutrition of the skin and superficial structures of the leg is greatly impaired, and its resistance to any sort of pathological process is low.

Numerous solutions have been advocated for the use as sclerosing agents:

1. Sodium salicylate in 20, 30, and 40 per cent concentration used extensively by Sicard, Paraf, and Forestier.
2. Mercuric chloride in 1 per cent solution.
3. Calorose and invert sugar preparation is recommended by McPheeter.
4. Red mercuric iodide, used by Montpellier and LaCroix.
5. Alcohol has been used but has nothing to recommend it.
6. Sodium chloride, 10 per cent, and sodium salicylate, 25 per cent, equal parts of each solution, used by Maignot and Carlton.
7. Glucose, in 50 to 60 per cent concentrations, are very thick solutions and very difficult to inject through small bore needle.
8. Grape sugar in highly concentrated solutions is used by Nobel, of Vienna.
9. Sodium chloride in 20 per cent solution, and used in 5 to 10 cc. amounts at each site of injection, is recommended by McPheeter, especially for use in larger veins.
10. Quinin urethan, advocated by Genvrier in the following solutions: Quinin

hydrochloride 4 grams, urethan 2 grams, distilled water 30 cc. (provided in ampules by Park-Davis & Co.).

The solutions which seem to answer all the requirements after being used and reported by various workers in many thousands of cases were sodium salicylate in 20, 30 and 40 per cent concentrations and quinin urethan solution. As these solutions seem to have much to recommend them, we used them exclusively in our work.

Sodium salicylate in 20 per cent strength was employed in the first few cases without success. Following this, we employed 30 and 40 per cent strength, using 2 to 4 cc. at site of each injection and making only three to four injections at one treatment with satisfactory results in every instance. This solution is probably the most efficient for use in the larger veins. The only objection to its use is the severe cramp that it produces at the time of injection. However, this seems to be of no consequence, except in patients with neurotic tendencies, as the cramp never lasts more than one or two minutes and, as a rule, only a few seconds. It is a fairly severe cramp which seems to follow the course of the vein downward and is occasionally experienced in the region of the fossa ovalis.

Quinin urethan solution was used in our later cases, and we consider this the method of choice. It does not produce any cramps or pain at the time of injection. It is very efficient, responding in every case, and is used in small doses, $\frac{1}{4}$ to $\frac{1}{2}$ cc. being used at each site of injection, and no more than 2 cc.'s being injected at one sitting. The injections are repeated at three or four day intervals until all veins become thrombosed. The number of injections and the duration of treatment depends entirely upon the extent of the varicosities. In four of our cases only one injection was required. A few extensive cases required from 12 to 24 injections. In our series of 17 completed cases we have had no failures to date and no serious

complications. One patient complained of a severe chill which lasted for about one hour, following quinin urethan injection. We have had some swelling of the leg following treatment, but this has always subsided in a short time. Ecchymosis at the site of injection occurred in several instances, but was of no consequence. In several cases we obtained small superficial sloughs at the site of injection, but these have never been sufficient to cause the least discomfort to the patient or to alarm us. Some degree of perivenitis probably occurs in every case, and at times it is severe enough to cause complaint of pain, tenderness over the vein, with reddening along its course. Such cases are not frequent, and rarely last more than 7 to 10 days.

The only instruments necessary are, any type of good syringe, 5 cc. capacity for salicylate, and 2 cc. for quinin urethan, and a suitable needle. The needle we found satisfactory was a steel, short bevelled, 25 or 26 gauge, 2.5 cms. in length.

There is some question as to the best position of the patient at the time of injection and as to the use of a tourniquet. Douthwaite suggests the use of a tourniquet to facilitate the puncture of a vein. Sicard, Miller, Thornhill, and others insert the needle into the lumen of the vein while the patient is either sitting or standing. They then have him assume a reclining position and inject the fluid. Their reason for this is twofold: (a) There is less blood in the vein when the leg is in the horizontal plane; (b) Sicard has shown that when the leg is horizontal fluid injected into the superficial veins shows no disposition to flow to the deeper veins but tends to remain localized in the vicinity of the injection. In spite of the practical inference that must be drawn from Sicard's work the result of the cases that we have had show the position of the patient to be a matter of indifference. From our experience the position which affords the most comfort to the patient and to the operator,

and at the same time leaves the vein dilated enough for an easy puncture, is the best position.

After placing the patient in the desired position, the actual process of injection consists of: (a) Cleaning the site of puncture with alcohol or some other colorless antiseptic; (b) inserting the needle into the lumen of the vein. (Our results indicate that it makes no difference whether the vein is punctured directly or after the needle has traversed a few millimeters of skin and subcutaneous tissue); (c) make suction by withdrawing the piston to determine if the point of the needle is in the lumen of the vein and when blood is drawn into the barrel of the syringe the next step may be taken; (d) inject the solution slowly, stopping occasionally, *e. g.*, after the injection of each 1 cc. to check the position of the point of the needle. A careful watch should be kept for signs of edema and swelling of the tissues around the site of injection. If, at any time, there is any doubt whether the needle is in the vein, stop the injection; (e) leave the needle in the vein for a few seconds after completing the injection, then withdraw it; (f) with a piece of gauze, exert firm digital pressure over the puncture site for one minute, then have the patient continue this pressure for two or three minutes longer; the site of puncture may or may not be dressed, according to preference; (g) have the patient remain quiet for five minutes after injection and then allow him to do as he pleases (Thornhill). No instructions are necessary except to notify the patient when to return.

The injections should begin in the more distal portion of the limb and proceed toward its proximal end. This allows for the reverse direction of blood flow; the first injections do not interfere with the succeeding ones. Douthwaite thinks it not necessary to inject above the middle of the thigh, since there are usually no symptoms in areas above this. He has, however, injected as high as the saphenous opening

without untoward results. Other authorities (Payne),⁽¹³⁾ inject the whole of the saphenous tract to within four centimeters of the fossa ovalis.

The immediate reaction depends, as previously mentioned, on the solution used. With the sodium salicylate solution there is an accompanied cramp; with the quinine-urethan solution there is none. With the injection of either solution there may appear a momentary constriction of the vessel injected, but this is only temporary and has not bearing on the final results of the treatment.

In twenty-eight to thirty-six hours the varix may be felt as a hard cord at the site of injection and for a variable distance of eight to sixteen centimeters along the vein. There may also be a slight reddening along the course of the vein accompanied by some tenderness on palpation that ordinarily disappears within a short time. At the end of a week the pains from the varicosities are entirely gone. The disappearance of pain is a progressive affair, and often can be noticed on the second or third day of the treatment, becoming less intense each day until it is no longer felt. On the fourth to the sixth day the thrombosed vessels are slightly less prominent than before treatment and often disappear within two weeks and may be felt as small hard cords running beneath the skin. There are some cases which require a longer time for the veins to disappear, but few of these require more than two months. During the entire course of treatment the patient is encouraged to walk about and is at liberty to attend to his or her work.

The action of the sclerosing solutions on the varicose veins has been given various terms. Sicard and Forestier emphasize that the reaction is essentially a "venitis" as being localized, generating a very adhesive clot, which does not give rise to pain or edema of the extremity, leaves an atrophied cord, and has positively no ten-

dency to give rise to emboli. Phlebitis is defined as causing pain with a frequent extension from the superficial network to the deep lying network, causing edema of the extremity, the clot formed is often loose and afloat in the blood in the dilated cavity, atrophy does not take place, and the veins remain hard and bulky. Further attacks of infection are possible which may give rise to emboli. Sir Sidney Alexander⁽¹⁴⁾ describes the same process as a "chemosis of the intima that suggests acute congestion of the vein that may be sufficient to cause the opposing intima to come together and obliterate the vein." Others writers term the process a phlebitis, as all the coats of the vein are penetrated by the fluids, as shown radiologically by Sicard and Gaugler. The greatest response is obtained from the intima, for here there is a hyperplasia of the endothelial cells with approximation of the adjacent walls. Secondary to this, a thrombus is formed and is characterized by being very hard, tenacious, adhering very closely to the walls of the vessel, and anchored to these walls by a firm network of fibrous tissue that permeates the thrombus and is attached to the entire circumference of the inner coat of the vein; it is not infected; shows no tendency to break up and form emboli, and organizes very quickly.

Marked cardiac or renal diseases, edema of the leg, old feeble patients, collateral varices, pregnancy, and recent varicose phlebitis have been mentioned as contraindications to this method of treatment, and with these we concur. Only under exceptional circumstances do we advise this treatment during pregnancy.

The greatest objection to this treatment is the possibility of the occurrence of embolism. It is, certainly, a theoretical possibility, but, as Dr. E. T. Bell, Professor of Pathology at the University of Minnesota, expresses it, "There is no amount of experimental work that can rule out theoretical possibility of embolism, but the practical clinical evidence of large numbers

of cases injected at home and abroad with thousands of injections having been made and only one fatality from embolism, is sufficient evidence to outweigh the theoretical possibility." (McPheeter, 1927.) Not a single fatality has been reported following the use of either sodium salicylate or the quinin-urethan solutions. Olson reports a fatality following the injection of calarose, and Lomholt (Forestier) one that followed the use of sodium chloride. McPheeter (Oct., 1928) collected from the literature seven fatalities that are attributed to the use of sclerosing solution.

The injection treatment has many advantages over surgical excision in that: (a) It requires no anesthetic and the discomfort that follows the use of an anesthetic; (b) the injection method is ambulatory and does not take the patient away from his or her work, while the excision of the veins requires complete disability for a period of several weeks; (c) the pain from the introduction of the needle is all that is experienced, other than the cramp with the injection of sodium salicylate, and this is surely less than that experienced by the dressing of the wound and removal of the sutures; (d) even a slight scar left from excision may be objectionable in some women who have their varices removed for cosmetic effect—injections leave no scars; (e) the injections are far less expensive than the cost of excision; (f) recurrence may be easily treated with a few more injections.

CONCLUSIONS.

(1) Obliteration of varicose veins of the lower extremity by the use of intravenous sclerosing solutions has proven highly satisfactory. The solutions of choice, we believe, are quinin, urethan and sodium salicylate.

(2) The reaction of the vein is essentially that of an aseptic inflammation caused by chemicals, and followed by the formation of a thrombus that obliterates the vein, and is characterized by the fact

that it shows no tendency to break up and form emboli and that it organizes quickly.

(3) There is no loss of time from work as the entire treatment is ambulatory and the procedure is relatively painless.

(4) Relief is prompt, and progressive with a return of the normal contour of the diseased leg without any traces of previos varices.

(5) Varicose ulcers and varicose eczema respond to this in conjunction with local treatment.

(6) Recurrences are not more frequent than that following excision and such cases are easier handled with the injections.

(7) The treatment improves the circulation in the legs without incapacitating the patient in any manner.

(8) There is no record of embolism having occurred following the use of the solutions advocated by the writers.

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DISCUSSION.

Dr. Earl Garside: The authors have so admirably handled this subject that there seems little to add. I am glad to note their attitude is that, although the injection treatment of varicose veins is not extremely difficult, there is, however, an element of danger in it, and in common with many other worthy procedures in the realm of surgery, it is not "fool-proof."

Unfortunately, I have had no experience in the use of quinin hydrochloride and urethan solution, which is apparently the authors' choice of solutions. It seems to have all the advantages of the others and none of the disadvantages. In my first cases I used 15 per cent to 20 per cent sodium chloride solution, and had no bad results. After using it for about two months I learned of McPheeters' experience of slough following its use. Knowing of Forestier's work I began the use of 20 per cent to 30 per cent sodium salicylate solution, which gave excellent results. A few patients complained of slight cramp, but in none was it sufficient to cause much concern. I was hesitant to try other solutions of which I knew less. The glucose solution is difficult to inject, and forms a friable clot, necessitating the wearing of a bandage to compress the intima of the veins to facilitate sclerosis. The mercuric solutions are known to be toxic, and may be so caustic as to form sloughs.

By way of emphasis, may I repeat some of the authors' contraindications. Certainly injection should be avoided in veins recently the site of a phlebitis. To proceed under these circumstances is to invite disaster from infection and septic emboli. The phlebitis seen about chronic ulcers is not a contraindication, however. Of course sclerosing the superficial veins should not be done when the deep veins are not competent to assume all

the responsibility of venous circulation of the extremity.

Undoubtedly the injection treatment of various veins has passed the experimental stage and has earned its place among recognized therapeutics.

NEUROLOGY AND THE EAR.

GILBERT C. ANDERSON, M. D.,

NEW ORLEANS.

The eighth pair of cranial nerves consists both functionally and anatomically of two distinct nerves subserving hearing and equilibrium, or spatial orientation. A third component, the intermediate nerve of Wrisberg, travels for a distance with the eighth but it is not concerned with the function of the eighth. While the auditory branch, or, rather, portion, of the eighth is the sole mediator of hearing, the vestibular branch is reinforced in its function of maintaining equilibrium by other factors as the deep sensations from the joints, tendons and muscles, by touch, by vision, and possibly somewhat by hearing.

The cochlear nerve originates in the spiral ganglion of the cochlear, the cells are bipolar, the peripheral branches running to cells in the organ of Corti, the centrally directed branches passing to the ventral and dorsal nuclei of the auditory nerve. The fibres then pass to the trapezoid body and the superior olive, most of them crossing but some remaining homolateral, then by way of the lateral fillet to the internal geniculate and the inferior corpora quadragemini, then sweeping through the posterior portion of the sensory part of the internal capsule they reach the cortical centers of hearing in the superior temporal gyrus. As some of the fibres are not crossed hearing has a bilateral cortical representation.

The vestibular nerve begins in the ganglion vestibulare, or Scarpa's ganglion. These cells are also bipolar and the peripherally directed fibres pass to the recep-

tors in the semicircular canals, the utricle and the saccule. The centrally directed fibres enter the brain stem where they divide, some passing downward to the vestibular nucleus while ascending fibres reach the medial, lateral and superior nuclei. A few fibres pass directly to the cerebellar cortex. A bundle of fibres from the vestibular nucleus descends the cord as the vestibulo-spinal tract to end about the anterior horn cells, effecting the muscles by way of the axones of these cells or the final common pathway. The ascending fibres from the nuclei are directed upward in the posterior longitudinal bundle to terminate about the cells of the oculomotor nuclei bringing the vestibular function into synergic action with the oculomotor muscles. It is also quite probable that some fibres are connected with the vagus.

Clinically the two portions of the nerve are generally effected in peripheral lesions while there may be an entirely disassociated interference with function in central lesions. It is however to be borne in mind that hearing can be entirely abolished by a central lesion which is bilateral because of its bilateral cortical representation.

The seventh nerve, owing to its juxtaposition, is frequently effected along with the eighth, especially in cerebello-pontine angle lesions, but the eighth may be effected much sooner than the seventh because the seventh is firmer and denser. One might assume that such a lesion which will effect the seventh will almost surely effect the eighth also, whereas a lesion effecting the eighth may spare the seventh for a long time. An example is a tumor of the eighth nerve which, when it effects the seventh, generally does so rather late.

Lesions of the eighth nerve naturally manifest themselves by interference with its function resulting in tinnitus, deafness and vertigo. While it is true that most lesions of the nerve will affect both portions, certain toxic substances seem to exercise a selective action upon one or the other, as vertigo from alcohol and tobacco and tinnitus and even deafness from quin-

ine and salicylates. Vestibular disturbances affect the vagus far more decidedly than do those of the auditory apparatus, as witness the nausea and vomiting so frequently associated with vertigo and viceversa. Tinnitus is a noise in the ear and may vary from a very indistinct and highpitched hum to a roaring, rending, breaking or cracking sound either continuous or intermittent. It is often an early symptom and may occur months or years before any diminution of hearing is noticed. During such a period it may be more or less continuous or it may exist for a time and then cease altogether to be forgotten and recalled only with difficulty when other symptoms bring the patient for consultation. It will disappear with the onset of deafness. Some patients with impaired hearing will recall tinnitus as having existed a long time before only after diligent questioning. The symptom is present in lesions of all degrees of severity ranging from intracranial tumors to inspissated cerumen; among other conditions in which it occurs one might mention meningitis or other diseases of the base of the brain, epleptic aura, migraine, uremia, arterio-sclerosis, labyrinthitis, perforation of the tympanic membrane, aneurisms, anemia, Eustachian occlusion, otosclerosis, toxic conditions from acute infections or drug, and last but not least, hysteria. Tinnitus as a symptom should always receive a good deal of respect and be investigated with the utmost care. The treatment is, of course, the treatment of the underlying cause, presuming this can be found.

In every case of impaired hearing it is desirable to learn if the deafness is of the nerve or endorgan type. Much can of course be learned by comparing air conduction with bone conduction after the method of Rinne. Normally air conduction is greater than bone conduction, but in disease of the endorgan the formula is reversed. The technic of the test is familiar to all, but it might be mentioned in passing that to definitely localize bone conduction

to one side a noise apparatus should be used in the opposite ear. A lesion of the temporal lobe or a lesion which effects the temporal lobe may cause unilateral deafness, or, if bilateral, a complete deafness. Such lesions are rare, but bilateral deafness is common in Schilder's disease or encephalitis periaxialis diffusa, the lesion generally starts in the occipital region and the cases might go first to an ophthalmologist but as the lesion advances forward the temporal lobes will be involved and bilateral deafness will occur. Lesions effecting the first temporal convolution may cause word deafness in which the patient clearly hears all sounds but does not interpret word sounds as they have lost their association. In lesions of the posterior limb of the internal capsule deafness occurs on the side of the hemianesthesia which is the contralateral side of the body owing to the decussation of the fibres. Hyterical deafness is generally unilateral and usually there is present some other factor to arouse the examiner's suspicion; it is sometimes associated with hysterical hemianesthesia, not necessarily on the same side.

The eighth nerve is probably the site of new growths more frequently than any other cranial nerve. These growths are mostly neurofibromata which are histologically benign but clinically malignant, as they can, and frequently do, cause death. They can exhibit a wide variety of signs and symptoms, according to their size, for when they reach a considerable growth they affect not only the eighth but the sixth and seventh nerves directly. They may also push toward the midline and crowd the pons and medulla toward the opposite side. Such pressure will affect the lower cranial nerves, the peduncles, the tracts passing through the pons, occlude the aqueduct of Sylvius, causing an internal hydrocephalus, and may finally embarrass the vital medullary centers. This might occur either through direct pressure or by increase in the general intracranial pressure. The writer has seen

two cases in which the brain stem was markedly displaced by tremendous acoustic tumors. These tumors have a very slow growth and may be present for a number of years before the patient comes for relief. Generally the diagnosis presents less difficulty than that of many other intracranial lesions. Roentgenologic technic has been developed which often shows erosion of the internal auditory meatus. A tumor in the cerebello-pontine angle, other than an acoustic, may prove confusing but the treatment is the same. Posterior fossa tumors in general may effect the eighth nerve. Tabes dorsalis commonly affects the eighth nerve; probably as frequently as it does the second, and in a similar manner, although sometimes the site of the process is in the ear; the deafness is generally very slowly progressive but it may develop swiftly; it is usually bilateral but may be more marked on one side. Tabetics are also subject to tinnitus and vertigo which may be severe enough to cause vomiting and prostration.

The function of the semicircular canals is spatial orientation; a disturbance of this function is characterized by vertigo, commonly called "dizziness" or "swimming of the head;" equilibrium may be entirely upset by vertigo. Vertigo is essentially a vestibular dysfunction although the primary or exciting cause may be in some part distantly removed from the ear. This is particularly true in gastro-intestinal disorders, diseases of the biliary apparatus and any of the multiplicity of disturbances to which the female pelvis is heir. It is frequently associated with headaches, especially migraine, and accompanies imbalances of the oculomotor muscles or even eye fatigue; it may be induced by gazing at rapidly moving objects when riding on a train, and even by nystagmus; it is the prime factor in seasickness and car sickness. Text books and outlines for neurologic examinations frequently separate vertigo into objective and subjective; objective when the outer world seems to spin around the

patient and subjective when the patient seems to spin upon his own axis in a stationary world. In the application of this principle one is apt to find that only rarely will a patient be able to tell whether himself or the outer world has been spinning. Some have thought that an intracerebellar lesion will cause objective vertigo away from the side of the lesion and an extra cerebellar lesion toward the same side. The most striking vertiginous syndrome is that described by Meniere as being due to an effusion of blood into the canals—some of the cases do have such hemorrhages but not all. The vertigo is so intense that the subject is struck down as if by an axe, perspiration is profuse, there is nausea and vomiting and even consciousness may be lost for a time; it is often accompanied by tinnitus and deafness, the deafness may be complete and last for some time. Occasionally there are premonitory symptoms as a slight vertigo or tinnitus. An examination of the ear will show the tympanic membrane and Eustachian tube normal. The condition is sometimes confused with gastro-intestinal upsets, epilepsy, apoplexy, or brain tumor. The attacks may last hours or days and may occur at frequent or long intervals, recovery from the acute attack is the rule, but the vertigo is apt to remain. Vertigo is rare in childhood but becomes more common as age advances and men are more often affected than women. Arterio sclerosis, hypertension, nephritis, gout and rheumatism are often present in elderly subjects given to vertigo; tinnitus and impairment of hearing are common accompaniments as might be assumed from the structure of the eighth nerve. Vertigo is a prominent symptom of a rare and obscure disease known as paralyzing vertigo or Gerlier's disease. It has not been reported in this country so far as the writer knows, seems to attack strong and healthy people and has a tendency toward families; it occurs in the summer, there is a sudden onset of vertigo with pain in the neck, in-

terference with vision and marked muscular weakness even to the point of prostration. The attacks lasts only a few minutes but may occur with great frequency over a period of years and then disappear. The Barany tests are par excellence for vestibular function; the technic need not be described.

Neuralgia of the ninth nerve may first come to the ear, nose and throat specialist, as the pain is in the throat but radiates to the ear. This is not a common condition but it is very characteristic and striking; it is apparently a major neuralgia of the ninth nerve exactly analogous to the tic douloureux of the fifth nerve. The pain is of the same sudden, lightning-like, lancinating character and of momentary duration. It is located along the lateral wall of the upper oropharynx in the region of the tonsil and anterior pillar and at the base of the tongue, it radiates to the ear on the same side. There are trigger zones as in trifacial neuralgia and the pain is brought on by eating, drinking, especially cold liquids, talking, etc. The patients are completely disabled and describe the pain as intolerable. The pain may be temporarily abolished by cocainization of the trigger zone but is permanently relieved by section of the ninth nerve, and as this section should be made proximal to the ganglion, it must be done intracranially.

Chronic purulent otitis media, mastoid inflammation and occasionally acute purulent otitis media may result in intracranial complications, as the roof of the antrum or tympanum is liable to perforation. We may encounter sinus thrombosis, brain abscess, intra or extradural, or meningitis. The neurologist is seldom called in sinus thrombosis but may be consulted in abscess or meningitis. Extradural abscess may be just above the tympanic roof or about the sigmoid sinus and may be suspected when the discharge becomes less or disappears and the patient shows signs of meningeal irritation. Extradural abscesses are more common than subdural, the dura being a tremendous barrier. The subdural ab-

scasses are in the temporal lobe or the cerebellum—more commonly the former. The temporal type lend themselves more readily to drainage as the intracranial pressure tends to keep the cortex pushed up against the opening and so occlude the subarachnoid space, but in the posterior fossa with its large cisterns there is more chance for the infection to spread. It is probable that many small extradural abscesses become localized and heal spontaneously, and while the same thing may happen to a small intradural abscess it seems far less likely. An intradural abscess may become localized and exist for a long time to suddenly burst and result in a rapid death.

A patient who has had a chronic ear or mastoid disease may complain of headache, which is the earliest and most common symptom; the headache is apt to persist and may be of moderate or the most extreme severity; he will also report a chilly sensation, not a real shaking chill; there is a feeling of general malaise but no marked prostration. Vomiting is the rule and it is frequently spontaneous—that is, not associated with meals or nausea yet hardly of a true projectile type. Projectile vomiting occurs when the intracranial pressure is increased. Temperature and leukocytosis may or may not be of help—not too much dependance can be placed upon them as the temperature may be subnormal, normal or elevated; percussion tenderness may be elicited over the site of the encephalitis and the patient will most likely be irritable and fussy.

A picture of this kind points very strongly toward intracranial invasion in an early stage. As the invasion progresses more positive signs appear, there is more definite evidence of meningeal irritation and the spinal fluid should now show a great increase in cell count with many polymorphonuclear leukocytes. If abscess forms in the temporo-sphenoidal lobe there may be one or more convulsion; a homonymous hemianopsia is of great localizing significance, this may be for colors only and

it may be transitory, but do not be misled if it is present one day and absent the next. Aphasia in a right handed individual in whom a temporo-sphenoidal abscess is suspected on the left side is about as definitely diagnostic as one could ask. Motor paralysis may develop; the first muscles affected are generally those of the face, the cortical centers being low down in the precentral region. Such a paralysis is, of course, cortical in type, which is to say, it involves the lower portion, the upper having a bilateral cortical representation. Much later there may be paresis of the arm and leg, seldom a frank hemiplegia.

An infratentorial abscess will naturally give signs of cerebellar involvement in addition to the general signs of brain invasion. There is occipital tenderness and pain, cervical pain with rigidity; the head may be tilted to one side, usually the side of the lesion, ataxia, incoordination, asynergia, past pointing, dysdiadochokinesis, cerebellar rebound, nystagmus, ocular palsies, conjugate deviation and loss of corneal reflex are some of them. Then too when the pressure is sufficient to interfere with the ventricular circulation, which occurs early in infratentorial lesions, we encounter a hydrocephalus, most probably internal, with its accompanying choking of the optic discs and evidence of pressure everywhere within the cranial cavity. Spinal puncture in brain abscess would certainly help in diagnosis by an early demonstration of meningeal irritation but it is frowned upon by some upon the assumption that the disturbance of pressure may favor spread of the infection or even break down or impede the walling-off process.

So soon as one can feel sure of the diagnosis of abscess it should be drained. Some few have broken through to the outside and drained spontaneously but to await such an eventuality is to show an unjustifiable optimism, if not drained the abscess is probably far more likely to rupture into a ventricle and cause death very promptly.

There is another condition upon which I should like to touch and that is the possi-

ble effect upon the region of the ear of malocclusion of the teeth. A malocclusion which disturbs the normal relationship between the condyle and the glenoid fossa will sometimes produce symptoms referable to the ear alone. This is seen particularly in cases where sufficient teeth are missing on one side to destroy occlusion on that side; when the muscles of mastication contract the ramus on that side is pulled to a higher level and so cants the entire mandible disturbing the normal relationships of the joint. In the edentulous there is an abnormal degree of approximation and even when the teeth have become considerably worn there may be an increase in the nor-

mal limitation of action of the joint. Such a condition could also occur in cases where plates are not well fitted. The commonest symptom is pain in the region of the ear although function may also be deranged, such derangement is more likely to take the form of dizziness occurring upon eating. It has also been observed that many of the edentulous complain of a loss, or a distinct diminution of, the sense of taste.

These symptoms may be attributed to the nearness of the articulation to the middle ear and the corda tympani and in cases of pain in the ear which cannot be explained or dizziness after eating it might be well to examine the mouth.

CASE REPORTS AND CLINICAL SUGGESTIONS

A CASE OF AINHUM.

R. C. HILL, M. D.,
BELLAMY, ALA.

Ainhum is sufficiently rare, especially in women, to warrant the report of a case; and, so far as I have ascertained, this is the only one to be reported from Alabama.

Case report. Mary W., a negro woman, aged 33 years, widowed, came for treatment in April, 1928, for a painful, swollen right little toe. About seven years ago she noticed a callous on the medial side, and another on the lateral side, of this toe. These calloused areas gradually spread around the toe, completely encircling it, and the band became grooved. This groove has gradually deepened; the toe has been painful and swollen for the past three months, and ulcerated on its floor for two weeks. The left little toe has had a similar constricted callous around it for approximately the same length of time. This groove is not nearly so deep, nor is this toe painful.

Family History. Father is living, aged 56 years, and in good health. Mother died at age of 45 of "heart trouble". One brother and two sisters are living and in good health. The patient and her parents were born and have always lived in this immediate vicinity.

Medical History. Patient has had measles, malaria, influenza, and, in February, 1928, lobar pneumonia. The right little toe has been painful since this attack of pneumonia. Menses began at the age of 14 years and have always been regular.

Physical Examination. The physical examination does not give much of interest except the con-

dition of the toes. The patient is a well-developed, well-nourished negro woman of about 33 years of age of somewhat inferior mentality. The pupils react to light and accommodation; the patellar reflex is present; there is a whitish ring in the cornea resembling an arcus senilis. The veins of the feet are prominent; the right little toe shows a calloused band encircling the toe at the first interphalangeal joint. This band is constricted and is fissured along the medial and dorsal aspect. This raw surface does not bleed easily. Distal to this band the toe is swollen and tender, and is spherical in shape. The left little toe shows a similar band but the constriction is not nearly so marked; here the calloused area is more pronounced on the lateral surface and also medially, where it presses against the adjacent toe.

Wassermann reaction is negative and the urine shows nothing abnormal.

Notes. The patient has been seen often since the first examination; the ulcerated areas have healed; that is, become covered over with a thick, cornified layer, only later to lose that again. The toe is not painful now, but is still globular in shape. The groove has deepened, constricting the toe more. Roentgen-ray pictures show partial absorption of the ends of the bones making up the first interphalangeal joint, and lying under the callous ring. The left toe shows little change. The patient refuses amputation and it will be possible to watch developments in the case.

NEW ORLEANS Medical and Surgical Journal

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THE USAGE OF WORDS.

Words have been used to express thoughts, ideas and intentions from the time the human race first separated itself by the process of evolution from the lower quadrupeds. Gradually there has evolved, in an orderly process, a certain formality in the use of words which is known as grammar. Conformity of grammatical rules is in a sense the index by which an educated man is distinguished from him who has lacked educational advantages. It follows that those who have enjoyed the blessings of training should speak a language which is understandable and agreeable to others.

If one should strip from the vocabularies employed by the physician, the lawyer, or the priest the purely technical terms, he might expect to find that these men use similar modes of expression—a product of proper regard for respectable English usage. Perhaps, as to member of the other learned professions the result would be as expected, but in the case of the physician the researcher would most certainly be doomed to disappointment.

The use of slang, solecisms and jargon in medical meetings and writings has spread to such an extent that what to medical men often seems plain every-day English, would appear to other educated individuals as meaningless and barbarous. The summation of this violating of accepted usage is found even in the titles of books—a form of expression which most certainly should be impeccable. The “acute abdomen”—what does that term mean? A sagacious, a discriminating abdomen? As well speak of the “acute toe” or a “chronic breast”. Surgeons are prone to say they are going “to operate a patient” or “to operate an appendix.” It is true that patients may be worked, so to speak, but undoubtedly when ill they would prefer to be worked upon, rather than to be operated. Good usage requires that one speak of operating a machine, but of operating upon persons. Internists often speak of the “old cardiac” or “nephritic.” Again a questionable expression is employed. Patients are said to be tubercular; perhaps they are similar to the anatomic tubercle or nodule to which the word tubercular refers, but the internist undoubtedly means that they are tuberculous—affected with tuberculosis.

Such incorrect use of words may be excused on the same plea that slang is condoned. In ordinary confabulations slang frequently adds to the work picture painted by the talker, but in thoughtfully prepared scientific writings it is inexcusable and so is the use of jargon.

MORTALITY IN AUTOMOBILE ACCIDENTS.

The Department of Commerce announces that during the four weeks ending October 6, 1928, 77 large cities in the United States reported 622 deaths from automobile accidents. This number (622) compares with 662 deaths during the four weeks ending October 8, 1927.

In the City of New Orleans in this particular time interval there were 21.3 deaths per 100,000 of population due to accidents in the city and 24.4 of total deaths within the city from accidents. This latter figure is higher than the first as of course it includes those individuals who were brought into the city for surgical treatment after an automobile accident in the surrounding country. These figures are approximately the same as a year ago. New Orleans is the only city in Louisiana or Mississippi which is reported. It stands fourteenth in the list, in the percentage of deaths per 100,000 population. Atlanta, Canton, Chicago, Cincinnati, Cleveland, Columbus, Detroit, Newark, Paterson, Salt Lake City, San Diego, San Francisco and Wilmington, Delaware are the only cities which proportionately have a greater number of deaths than New Orleans. This is not a record to be proud of. Despite the efforts that have been made by civic organizations urging the care in driving of automobiles, the rate this past year was higher than the year preceding. Furthermore, the death rate from automobile accidents per 100,000 population is higher by far than the greater majority of the larger of the great American cities, some of which have rates of only 10 per 100,000 population.

INFECTION WITH BACILLUS OF PFEIFFER.

A subject of considerable discussion among internists and laboratory workers is whether or not *Bacillus influenzae* is ever the primary cause of an infection. In certain diseases such as measles and whooping cough the organism undoubtedly is only a frequent secondary invader. On the other hand in epidemic influenza and many of that large group of infections diagnosed as colds definite proof has not been introduced that the organism is either a secondary invader or is primarily responsible for the disease. Walker* recounts an experience of a laboratory worker who had the misfortune to have a rabbit which was being infected experimentally with a strain of the Pfeiffer organism, repeatedly sneeze in his face. The laboratory worker felt several of these droplets strike his face. Twenty-eight hours after inoculating the rabbit he developed the usual symptoms with severe coryza, and these persisted for some days. At no time was there any fever. Organisms serologically identical with the laboratory strain were isolated from the secretions of the various mucous membranes affected.

Apparently this condition could be called a severe cold; of particular interest in the fact that this observation proves very definitely that the organism *B. influenzae* attacks the respiratory mucous membrane as the primary cause of disease.

*Walker, John E.: Infection of Laboratory Worker with *Bacillus Influenzae*. *J. Infect. Dis.* 43:300, 1928.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL MEDICAL STAFF MEETING.

November 20, 1928.

In the absence of the Chairman, Dr. L. J. Dubos, Vice-Chairman presided. Dr. J. H. Smith presented the first case, showing the patient. The young white female had been in the ward for 5 months. She had been admitted with the complaint of pulmonary hemorrhage. Except for some dullness at the right apex her physical examination had been negative. The roentgenogram showed increased density of the right apex, and the report read consolidation with tendency to cavity formation. The process involved the whole of the upper right lobe. The roentgenograms were demonstrated. She had had periods of comparative well being, free from hemorrhage which had been followed by attacks of bleeding, as much as a teacupful at a time. The sputum showed no acid fast bacilli. She was given five doses of neoarsphenamine with no apparent benefit. Artificial pneumothorax had also been attempted. After a severe hemorrhage a transfusion had been given which had helped considerably. The patient still bled, though not as much as previously. The dullness over the right apex was thought to have decreased, and there was some questionable clearing of the area of density as shown by the roentgen ray. The onset of the condition followed after a tonsillectomy and was thought to have been a lung abscess at that time. Dr. Smith asked for suggestions as to the further treatment of the case.

Roentgenograms of another case were then shown. These were of a white female, aged 20 years, who began to have trouble two days following a tonsillectomy. The diagnosis of lung abscess had been made. The abscess had been rather large. The pictures showed the reduced size of the cavity following treatment with postural drainage only.

Dr. de la Houssaye commented on the first case, mentioned a case of lung abscess in a child which had done remarkably well with transfusion.

Dr. Durel suggested pneumothorax in the first case, followed by roentgenogram to be certain that collapse had been secured.

Dr. Jamison spoke of the possibility of a non-opaque foreign body being responsible for the condition in the first case. He suggested bronchoscopy and the use of lipiodol, both for diagnosis and therapy.

Dr. Durel spoke of the beneficial effects obtained from creosote inhalations in cases of lung ab-

cess, and also advocated the use of bronchoscopy and lipiodol where indicated.

Dr. R. Lyons then presented a white female, aged 58 years, who had been in the ward about 1 month. The present illness had begun about 2½ months previously, with fever, cough, and pain in the chest. This was of short duration, and she returned to her usual household duties. Dyspnea and weakness then became marked; she consulted a physician who gave her digitalis and in a few days she was improved. The condition returned again shortly, this time associated with nausea and vomiting and continued until her admission. The past history was unimportant except for the fact that she had had pneumonia 8 years previously.

When first seen she was acutely ill, very orthopneic. The lungs were hyper-resonant with crepitant rales over the bases. The heart rate was rapid, and there was an apical murmur present. There was tenderness and resistance over the liver. The sputum was blood tinged.

The blood pressure could not be obtained. The urine was negative except for a trace of albumen. The P. S. P. was 40 per cent, intravenously. The Wassermann was negative and the non-protein nitrogen was 60 mg. Later the N. P. N. was 34 mg. Roentgenogram showed old healed tuberculosis at both apices. A clinical diagnosis of auricular fibrillation was made, and later the diagnosis of mitral stenosis.

The case was considered of interest for several reasons. The acute onset was unusual. The question of when the stenosis developed or how long it had existed, was interesting. The patient was not as sick as one would expect in a person who had as marked an auricular fibrillation as she had. The pulse could not be felt, and the blood pressure could not be obtained. She was given 1/300 grain ouabain intravenously and the effect was remarkable. The pulse came back and shortly the blood pressure could be read. The next day she was given 1/240 grain ouabain, and thereafter digitalis, with improvement.

Dr. Jamison discussed the prognostic significance of the blood pressure in mitral stenosis, stating that with an elevation of blood pressure the prognosis is usually good, while with a low pressure the patient rarely lives beyond the age of 40 years. He mentioned the fact that valvular lesions are usually difficult to diagnose in the presence of auricular fibrillation. The use of ouabain was commended with the opinion that it is not a dangerous drug when properly used, is

excreted in 12-24 hours, and can be used while waiting for the digitalis effect.

Dr. Herrmann mentioned the occurrence of pneumofibrosis resulting from chronic congestion in mitral stenosis.

WILLARD R. WIRTH, M. D.

TRANSACTIONS OF THE CHARITY HOSPITAL SURGICAL STAFF

The regular monthly meeting of the staff was held November 18, with Dr. Graffagnino presiding. At this meeting the Chairman explained that he would supply members of the staff with a monthly mortality report. He stated the membership would probably be interested in knowing these figures by sections, *i. e.*, General Surgery, Gynecology, Obstetrics, etc. Accordingly, each member in attendance was supplied with a report of the previous months deaths and admissions—which had been compiled by the secretary of the staff, Dr. Loria. It was proposed that this plan be continued and elaborated from time to time.

Nothing else of any particular interest scientifically was presented except a bone tumor specimen, an opinion on which was withheld until the case was studied more carefully.

FRANK L. LORIA, M. D.

TRANSACTIONS OF THE PRESBYTERIAN HOSPITAL CLINICAL SOCIETY.

The November meeting of the society, as the previous others, was presided over by Dr. John W. Lindner.

On completion of the usual business Dr. Chas. L. Cox read a short paper dealing with "Some Recent Observations on the Treatment of Sinus Disease". He explained that the tendency is away from the heretofore radicalism in the treatment of these diseases, and in favor of conservatism. The acute sinus infections were stated as being especially those needing conservative care. In children, it was stated, one must be ultra conservative in the treatment of acute maxillary sinus disease. Acute frontal sinus infections must also be dealt with carefully. Should there be an empyema which can not be relieved by any of the other simple methods—external trephining must be done.

Dr. Cox explained that the roentgen-ray was very valuable in diagnosis of sinus disease, but added that unnecessary chances are taken when one uses lipiodal or any other material to show the areas up better; and he cited a case where the lipiodal went out into the cranial cavity and

into the spinal canal—but fortunately, without any trouble developing.

Following this Dr. H. R. Unsworth presented an interesting case of sclerotic myelitis. The case was exceptional because it simulated tabes. She had been given antiluetic treatment in the past simply because her husband had been luetic. However, her serological findings—blood and spinal fluid—were always negative. Clinically she had vibratory changes, absent knee jerks, fixed pupils, right Babinski, positive Rhomberg, swaying gait, sluggish bladder, and slight ptosis of the left eye-lid.

This case was seen by several neurologists and it appeared that the only diagnosis possible was that of sclerotic myelitis.

FRANK L. LORIA, M. D.

FRENCH HOSPITAL MEDICAL STAFF MEETING.

A regular meeting of the French Hospital Staff was held on October 12, 1928. The minutes of the last meeting were read and approved.

The report of patients discharged during the month of September showed a marked improvement over that of previous months.

Dr. Graffagnino announced that the French Government would make a donation to the Hospital.

Deaths occurring during the month of September, due to chronic interstitial nephritis, bronchial pneumonia, and toxemia of pregnancy, were discussed by Dr. F. J. Beyt. Dr. L. Menville asked for a more careful observation of cases before making a diagnosis.

Dr. P. Graffagnino announced that the assembly hall would be converted into a reading room for members of the staff. Donations of books and journals would be accepted. Dr. D. N. Silvermann suggested that the Orleans Parish Medical Society might make a permanent loan of some of their duplicate books and magazines.

Dr. D. N. Silvermann was asked to present an abstract at the next meeting.

Dr. E. L. Zander was appointed to assist Dr. F. J. Beyt in getting members of the staff to present their cases.

Dr. W. H. Harris announced that the basal metabolism apparatus had been installed.

VICKSBURG SANITARIUM.

Tuberculous Peritonitis With Chronic Intestinal Obstruction.

Presented by Dr. J. A. K. Birchett, Jr.

November 10, 1928.

Patient: A colored male, aged 28, single, a government clerk, gave the following history: Several years ago he began having digestive disturbance and abdominal pain, gradually becoming worse. The diagnosis of gall bladder disease and appendicitis was made by his physician. Gall bladder was drained and appendix removed in 1926, but symptoms persisted. One year ago he noticed swelling at site of abdominal scar, which was diagnosed as an early hernia. Since that time he has had fever, loss of weight, and abdominal pain. Denies venereal infection; had influenza and bronchitis in 1918. He has had flatulence and constipation with occasional attacks of diarrhea.

The family history gives no information as to present history.

Physical examination: Gives no information as to present condition. The lungs show no rales or areas of dullness and roentgen-ray examination of lungs is negative. The abdomen shows marked distention with old right rectus scar, prominent near middle, sacculated, easily emptied with regurgitation, thin wall—apparently a hernia or collection of fluid or pus. The roentgen-ray studies showed gastro-intestinal tract pushed to left side of abdomen with apparently a mass in right lower quadrant and lumbar region.

Procedure: Under local anesthesia, the protrusion in old scar was opened and 500 c.c. of puru-

lent material evacuated. The walls of abscess showed granulations with no foreign body found and no anatomical landmarks distinguishable. The abdomen was closed with drainage. Patient improved in general appearance and strength and was discharged on thirty-first post-operative day with freely draining fecal fistula.

Subsequent history: The patient returned one month after discharge with increased discharge from fecal fistula, which at one time had nearly closed, and complaining of intermittent diarrhea and constipation. The patient was apparently in better condition than when first seen, but had pain in region of sigmoid, descending colon, and umbilical region. Barium study showed a large collection, apparently in terminal ileum, with evidence of constriction. A tentative diagnosis of tuberculous peritonitis with chronic intestinal obstruction was made, and exploratory operation advised.

Procedure: Under gas-ether anesthesia, the abdomen was opened at inner side of fistulous tract. Peritoneum was easily opened. There were many adhesions about terminal ileum, which was distended with fecal contents and of paper thinness. The transverse and ascending colon was mostly collapsed due to obstruction at cecum, which was very thick and studded with tubercles. The mass was so fixed that resection was impossible, and anastomosis was done between distended terminal ileum and transverse colon, thus diverting fecal stream past the obstructed cecum. The abdomen was closed without drainage and patient has had an uneventful convalescence. The fecal fistula has gradually closed and patient is much improved.

TWO HUMAN CASES OF RABIES.—Rice reports two cases seen in Indiana during 1927. Each patient was bitten by a dog which was proven rabid by the finding of typical Negri bodies by the laboratory of the Indiana State Board of Health. Both received first aid treatment, in one case at least nitric acid being used. Both were boys, and both were bitten through the upper lip—a very dangerous place. Both received the full fourteen-dose prophylactic treatment without interruption. The virus used was that of a firm which is very careful and conscientious in the preparation of its product, which is a modified Harris preparation of the living virus. Virus from the same firm was used in the two cases. In one case, the period elapsing before treatment was begun was three days; in the other case, it was four days. Both patients were brought to the Riley hospital after symptoms were well advanced and both died in less than twelve hours after being admitted. Both had complete autopsies and both had Negri bodies demonstrated in the brain. In one there were four positive animal inoculations; in the other there were no animal inoculations as the diagnosis was absolutely positive without it. The point emphasized is the extreme danger of a bite on the lip. Patients so mutilated should begin treatment immediately and not wait three or four days for the examination of the brain of the

animal. Furthermore, there is reason to believe that fourteen treatments are not enough under such conditions. At least twenty-one are recommended. Cauterization of the wound with nitric acid failed in one of these cases, but it was not done until "several hours after the injury." The incubation period in one case was eighteen days, and in the other, ninety-two days. In the latter case, the symptoms were probably delayed by the treatment, and, as the child did not suffer as horribly as the classic picture of rabies would lead one to expect, the treatment was not entirely a failure, even though the child did die. The first case described was so mild that several experienced physicians refused to believe that it was rabies until the evidence of Negri bodies and positive animal inoculation was brought before them. The latter case was one of the wildest demonstrations imaginable—a nerve racking spectacle—and left no doubt as to diagnosis. It is often said that human beings and other animals which do not commonly protect themselves with their teeth, or bite when angry, will not attempt to bite their attendants when they have rabies. One of these patients repeatedly tried to bite those about him, and, as a matter of fact, did succeed in biting two nurses—one on the finger and the other on the back of the hand.—J. Am. Med. Assoc., 91:1631-1632, 1928.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

TRANSACTIONS OF THE ORLEANS PARISH MEDICAL SOCIETY.

Besides the regular meeting of the Board of Directors, the Society held one Clinical Meeting at the United States Marine Hospital.

The following cases were presented at this meeting by members of the Staff of the Marine Hospital:

Four cases illustrating the various phases of the injection treatment of varicose veins, one case of Milroy's disease, three cases of aortitis, one case of periosteal-osteitis of the sacrum, one case of destruction of the pubis of unknown causation, one case of cerebrospinal lues with unusual manifestations and one case of thrombo-angeitis obliterans.

Following the meeting refreshments were served.

The second December meeting was dispensed with on account of confliction with the holidays.

December 4, the third Stanford E. Chaillé Memorial Oration was held with Dr. Carl J. Wiggers of Cleveland as the orator. The subject of his paper was, The Value and Limitations of Laboratory Methods in Clinical Investigation of Cardio-vascular Diseases.

The annual election of officers for the year 1929 was held Saturday, December 8. The following officers were elected:

Dr. E. D. Fenner, President.
Dr. C. Grenes Cole, First Vice-President.
Dr. Frederick L. Fenno, Second Vice-President.
Dr. Adolph Jacobs, Third Vice-President.
Dr. H. Theodore Simon, Secretary.
Dr. John A. Lanford, Treasurer.
Dr. Daniel N. Silverman, Librarian.

Additional Members

Board of Directors

Dr. P. Graffagnino. Dr. J. Birney Guthrie.
Dr. Wm. D. Phillips.

The annual banquet of the Society was held at the Chess, Checkers and Whist Club, and the election results were read at this time.

During the week of December 3-8 the annual Longer Life Week was held. Members of the Society made addresses on the value of periodic health examinations before universities, high schools and co-operative clubs of the grammar schools, and over the radio and before the luncheon clubs of the city. Streamers were strung in front of the hospitals. Posters were displayed in all large department stores and there was much publicity given this week by the press. Dr. Leopold Mitchell, Chairman, and the person-

nel of this Committee deserve full credit for the success of this week.

The Secretary's office is in receipt of a communication from Dr. P. T. Talbot, Secretary-Treasurer of the Louisiana State Medical Society, stating that dues for 1929 (\$4.00) are payable in advance. Please send your check in for this amount and include your check for dues in the Parish Society.

TREASURER'S REPORT

Actual Book Balance, 10/31/28	\$82.38
Receipts during November	2,489.16
	<hr/>
	\$2,571.54
Expenditures:	\$611.23
	<hr/>
Book Balance 11/28/28	\$1,960.31

LIBRARIAN'S REPORT.

Eighty-seven books have been added to the Library during November. Of these 54 were received by gift, 21 by binding and 12 from the New Orleans Medical and Surgical Journal.

Gifts of journals, books and pamphlets have been received from the following persons: J. H. Musser, C. Jeff Miller, Haidee Weeks and Joseph Hume.

Notation of new titles of recent date is appended herewith:

NEW BOOKS—NOVEMBER.

Hazen—Syphilis. 1928.
Clark—Determination of Hydrogen Ions. 1928.
Southern Surgical Association. Transactions. 1928.
International Clinics. Sept., 1928.
International Medical Annual. 1928.
American Gynecological Society, Transactions. 1919-22.
U. S. Public Health Reports. V. 43. pt. 1, 1928.
Terry—Opium Problems. 1928.
Giltner—General Microbiology. 1928.
Moynihan—Addresses on Surgical Subjects. 1928.
Cemach—Surgical Diagnosis. 1928.
Cumulative Supplement and Composite Index, to Gynecological and Obstetrical Monographs. 1928.
Scott—Hughes Practice of Medicine. 1928.
Index-Catalog of the Surgeon-General's Office. V. 7. 1928.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

TO THE MEMBERS OF THE LOUISIANA STATE MEDICAL SOCIETY:

At the opening of the year 1929 the Chairman of the Committee of Arrangements wishes to remind you that the Louisiana State Medical Society will celebrate the greatest event of its life, the semi-centennial celebration of its organization. Plans have been made for elaborate preparations, and New Orleans is ready to receive you with its usual bountiful hospitality. The dates of the meeting are April 9, 10 and 11, 1929, and at this time of the year New Orleans is at its best. The temperature is temperate, the sun sheds plentifully its beautiful sunshine, the gardens are in bloom, and with all the points of interest intimately connected with the history of the City, she feels that she can offer you a week of unusual pleasure and amusement, to say nothing of the interesting program of the meeting. The committee has in mind a special night where the celebration will really take place, and hopes to make this occasion memorable from an artistic, oratorical and social standpoint. A large attendance is expected, and we believe with the great road facilities extending throughout the State that motoring to New Orleans should be an added attraction and should swell our attendance beyond all past records.

The following is a list of Chairmen of the Sub-Committees of the Arrangement Committee, who will take care of the various arrangements:

Committee on Finance—Dr. E. D. Fenner.

Committee on Registration—Dr. Walter J. Otis.

Committee on Booths—Dr. O. C. Cassegrain.

Committee on Signs and Decorations—Dr. E. L. Leckert.

Committee on Ladies' Entertainment—Mrs. C. V. Unsworth.

Committee on Badges—Dr. Marcy J. Lyons.

Committee on Scientific Exhibits—Dr. Foster M. Johns.

Committee on Entertainment—Dr. Homer Dupuy.

Committee on Publicity—Dr. Lucien A. LeDoux.

Committee on Hotel—Dr. J. C. Menendez.

Committee on Golf—Dr. Allan Eustis.

The Chairman takes this occasion to offer you his very best wishes for a prosperous and happy New Year.

Dr. Paul J. Gelpi, Chairman,
Committee on Arrangements.

NOTICE

According to the By-Laws of the Louisiana State Medical Society, dues for the fiscal year of 1928 are now due. Secretaries of the various Parish Societies should begin at once to collect the annual State dues from its members for 1928, and remit as promptly as possible to the Secretary-Treasurer at 1551 Canal Street, New Orleans. Any members from unorganized parishes are requested to send in their dues direct to the Secretary-Treasurer of the State Society.

In this regard we would like to call your attention to the fact that the protection under the Medical Defense of the State Society is only covered from the time that individual dues are received by the Secretary-Treasurer of the State Society. It is therefore urgent that these dues be remitted as promptly as possible in order that one may have full protection under our Medical Defense Act.

CHAIRMEN OF SECTIONS

The following Chairmen of Scientific Sections for the approaching meeting of the Louisiana State Medical Society, New Orleans, April 9, 10 and 11, 1929, have been appointed by the President:

Medicine and Therapeutics—Dr. Robert Bernhard, New Orleans.

Pediatrics—Dr. R. T. Lucas, Shreveport.

Nervous Diseases—Dr. C. V. Unsworth, New Orleans.

Bacteriology and Pathology—Dr. Andrew Friedrichs, New Orleans.

Public Health and Sanitation—Dr. E. B. Godfrey, Minden.

Gastro-Enterology—Dr. J. B. Vaughan, Monroe.

General Surgery—Dr. Roy B. Harrison, New Orleans.

Gynecology and Obstetrics—Dr. P. Graffagnino, New Orleans.

Eye, Ear, Nose and Throat—Dr. Lionel F. Lorio, Baton Rouge.

Urology—Dr. C. M. Horton, Franklin.

Radiology—Dr. W. F. Henderson, New Orleans.

Orthopedic Surgery—Dr. P. A. McIlhenny, New Orleans.

Those desirous of reading papers should communicate with the various Chairmen as promptly as possible. The program for each Section must be in the hands of the Secretary-Treasurer not later than February 9, 1929.

TO ALL DISTRICT AND PARISH SOCIETIES

Your attention is directed to the following resolution which was passed at the last meeting of the House of Delegates:

"That the President of the State Society be notified, in advance, of all district and regional society meetings in the State, so that he may attend, if possible."

Accordingly, proposed meeting times in the future should be sent to our President as early as is consistent, in order that he might avail himself of the opportunity of attending if possible.

MINUTES OF THE WINTER MEETING OF THE SEVENTH DISTRICT MEDICAL SOCIETY

The Seventh District Medical Society held its Winter meeting in the Egan hotel, Crowley, December 6, 1928.

The meeting was called to order by Dr. J. W. Faulk, president. The large attendance of members and the number of prominent guests, supplemented by the delightful banquet, contributed in making the meeting one of the best since the Society's organization.

After being introduced by Dr. Faulk, Mayor H. Gordon Brunson of Crowley extended the city's welcome. He paid tribute to the medical profession in his address of welcome.

The minutes were read, and upon motion, approved. Following the reading of the resolutions on the death of Dr. E. M. Ellis, it was motioned and seconded that copies be distributed in accordance with the resolution. In a very touching address, Dr. Mayer of Opelousas eulogized Dr. Ellis.

Upon motion of Dr. E. J. Cather of Oakdale, resolutions on the death of Dr. S. M. Scott, his former associate, were ordered prepared for submission at the next meeting. A committee composed of Dr. E. J. Cather, Oakdale; Dr. T. C. Moody, De Ridder, and Dr. D. C. Isles, Lake Charles, was appointed to draw up the resolutions.

Jennings was selected as the next meeting place, after the withdrawal of an invitation to meet in Lake Charles.

The excellent scientific program, consisting of very instructive and interesting papers, was as follows:

1. Local Anesthesia of the Pelvic Outlet, Dr. Carroll W. Allen, New Orleans.

2. The Treatment of the Physically Subnormal, Dr. Oscar W. Bethea, New Orleans.

3. External Epitheliomata and their Treatment, Dr. M. T. Van Studdiford, New Orleans.

4. Surgical Treatment of Arthritis, Dr. John T. O'Ferrall, New Orleans.

In appreciation, Drs. Allen, Bethea, Van Studdiford and O'Ferrall were elected honorary members of the Society. It was ordered that these papers be submitted for publication in the New Orleans Medical and Surgical Journal.

S. R. Henry, M. D.,
Secretary-Treasurer.

RESOLUTIONS ON THE DEATH OF DR. E. M. ELLIS

Whereas, it has pleased the Almighty, on August 10, 1928, to remove from our midst one of the oldest and most highly respected of the medical profession, an esteemed physician and surgeon, useful citizen, Dr. Elijah Madison Ellis, and:

Whereas, in the death of this illustrious gentleman, the medical fraternity, Acadia Parish and Louisiana, sustain the loss of a man whose loyalty to all classes and creeds was unswerving, the loss of a man who towered high in the estimation of those who value rectitude and who have a proper appreciation for the lofty attributes which make the private and public career, such as that of Dr. Ellis, honorable and beautiful, therefore be it:

Resolved, that the Seventh District Medical Society, whose privilege and honor it has enjoyed with the affiliation and cooperation of so valuable a member—the founder and first president of the Society—wishes to chronicle the death of a brother physician whose life has been an unbroken chain of charitable and industrial performances and whose noble deeds of professional ethics and kindness all serve as a beacon light to posterity, therefore be it further:

Resolved, we extend the Society's sincerest condolences to his sorrowing widow and family, and that a copy of these resolutions be sent to them, a copy for publication in the New Orleans Medical and Surgical Journal, and a copy spread with our minutes as a permanent record.

B. A. Littell, M. D.
T. H. Watkins, M. D.
M. L. Hoffpaur, M. D.

The East and West Feliciana Bi-Parish Medical Society met in the office of the President, Dr. E. M. Toler.

The essayist, Dr. Allan C. Eustis of New Orleans read a most excellent paper on myocarditis, which was favorably discussed by members pres-

ent. Dr. Eustis also demonstrated the Tycos sperometer with Faust attachment and proved to all present the beneficial and helpful results from the use of this instrument.

Officers elected for 1929 were: Dr. J. W. Lea of Jackson, President; Dr. C. S. Miller, Jackson, Vice-President; Dr. E. M. Toler, Clinton, Secretary-Treasurer; Delegate to Louisiana State Medical Society, Dr. E. M. Toler; Alternate, Dr. M. S. Freiman. Physicians present were: Drs. Eustis, Jones, Young, Morgan, Miller, Freiman, Lea, Shaw and Toler. At 1:00 p. m. an elaborate banquet was served in the Rist Hotel.

LOUISIANA STATE PEDIATRIC SOCIETY

The next meeting of this society will be held on Monday of the week of the meeting of the Louisiana State Medical Society, in New Orleans. The program will be usually good and we expect a large attendance. Anyone interested in becoming a member of the society should write the secretary-treasurer, Dr. C. T. Williams, 7401 Burthe St., New Orleans.

PARISH MEDICAL SOCIETY OFFICERS FOR 1929

The following Parish Medical Societies have elected officers for 1929 as follows:
East Baton Rouge Parish Medical Society:

President—Dr. Rhett McMahon, Baton Rouge.
Vice-President—Dr. C. E. Latham, Baton Rouge.
Secretary-Treasurer—Dr. H. W. A. Lee, Baton Rouge.
Delegates—Dr. John McKowen, Dr. C. A. Lorio, Dr. Rhett McMahon.

DeSoto Parish Medical Society:

President—Dr. R. A. Tharp, Mansfield.
Secretary-Treasurer—Dr. D. C. McCuller, Mansfield.

Vernon Parish Medical Society:

President—Dr. J. S. Branch, Leesville.
Vice-President—Dr. F. P. Jones, Leesville.
Secretary-Treasurer—Dr. D. O. Willis, Leesville.
Delegate—Dr. D. O. Willis, Leesville.
Alternate—Dr. M. W. Talbot, Leesville.

Dr. Amedee Granger, Professor of Radiology in the Graduate School of Medicine of the Tulane University of Louisiana, attended the Convention of the Radiological Society of North America held at Chicago, Ill., beginning December 2, 1928, where, at the request of the Scientific and Clinic Committee, he gave two clinics.

Dr. E. Denegre Martin, Dr. Urban Maes, Dr. Isidore Cohn and Dr. Joseph A. Danna, members of the staff of the Graduate School of Medicine of the Tulane University of Louisiana, attended the meeting of the Southern Surgical Association held at White Sulphur Springs, Va., beginning December 10, 1928.

MEETING OF THE TRI-STATE MEDICAL SOCIETY

We wish to call your attention to the meeting of the Tri-State Medical Society of Texas, Louisiana, and Arkansas in which your readers should be vitally interested. Our Society has grown from a mere infant to over two thousand members. Our meetings are now largely attended and programs put out by this Society are second to none in the country. The better men all over the world contribute to the success of our organization. The meeting is to take place in Texarkana, January 17 and 18, 1929.

Frank H. Walke, Secretary.

Sanitary Engineer A. W. Fuchs. Directed to proceed from Jackson, Miss., to Jacksonville, Fla., and return, in connection with field investigation of milk.

MEETING OF ST. TAMMANY MEDICAL SOCIETY.

The regular monthly meeting was held on Friday night, December 14, at 8 P. M. This was the annual one for strictly business and election of officers for the ensuing year.

The following doctors answered roll call: F. F. Young, G. McG. Stewart, H. E. Gautreaux, W. L. Stevenson and L. Roland Young, of Covington, La.; F. R. Singleton, J. K. Griffith and J. F. Polk, of Slidell, and A. G. Maylie, of Mandeville. The President, Dr. F. F. Young, and Secretary-Treasurer, L. Roland Young, were at their post.

A letter was read from Dr. Talbot regarding the \$5.00 registration fee at the State meeting. This was freely discussed, and nobody thought this should be the case, and the following resolution was made by Dr. J. K. Griffith, and seconded by Dr. J. F. Polk: That the St. Tammany Parish Medical Society go on record as opposing any registration fee at State Medical Society Meetings, and that the Secretary-Treasurer so notify Dr. Talbot and the State Medical Journal. Dr. Maylie here asked for a roll call and a vote—all voting yea.

After the business and routine matters were dispensed with it was moved and unanimously carried that the Secretary write Dr. Paine a letter of condolence and expressed therein the

sympathy of each and all of us for him and his over the loss of his beloved wife, one who will be so much missed by all in their community and the surrounding country.

The election of officers was then in order and L. Roland Young was chosen as President and A. F. Herrin Secretary-Treasurer. Dr. A. G. Mylie was re-elected as Delegate and J. K. Griffith Alternate to State Medical Society. W. L. Stevenson was elected Vice-President.

Mandeville was selected as the next meeting place and Bechac's will be the grounds for the annual banquet and installation of officers.

L. Roland Young, Secretary-Treasurer.

TRI-STATES MEDICAL ASSOCIATION.

All of us think sometimes there are too many medical societies. But one that has functioned regularly for nearly half a century must have something worth while about it. And when that particular one gets better every year you know it must be worth while.

You may or may not know this one I am writing about is one of the few societies really profitable both to men in general work and those engaged in special lines. It has no sections and every address is pointed right at the weak point in the whole scheme of the practice of medicine. And that is, as you have often thought, the borderline where general medicine and the specialties meet. The general practitioner must know something of the specialist's work and the latter ought to know a good deal of general medicine.

The Tri-States Medical Association of Mississippi, Arkansas and Tennessee, will meet at Hotel Peabody, in Memphis, on February 6-7-8, 1929. For absolute quality, pure and undefiled, the

NOGUCHI HONORED.—Dr. Hideyo Noguchi, famed bacteriologist, who succumbed last May to the effects of yellow fever while studying the disease on the African west coast, was memorialized by his associates of the Rockefeller Institute recently. Dr. William H. Welch of Johns Hopkins University, and dean of American medical scientists, declared the world should know that Dr. Noguchi's claim to fame did not rest solely on the final judgment of his yellow fever experiments.

"I think this needs a little emphasis," Dr. Welch said, "because should it appear, as it is likely to, that the American disease and the African disease are identical; should it appear that Noguchi's leptospiro is not the cause of genuine yellow fever, it does not imply that Noguchi's work was not a very important contribution. It is a contribution of the first importance if the leptospiro is a secondary invader in yellow fever."

Dr. Welch pointed out that the yellow fever researches of Dr. Noguchi were only a part of the great scientific con-

program to be presented has never had a superior at any medical gathering in the South. That is a calm statement of fact—not boasting. There have been several which had more bulk, but few have ever approached it in worth. Read the list of speakers further over in this issue and begin right now arranging your affairs so you can hear every one of them. It means an intensive, varied, post-graduate course you can't afford to miss! If you fail to receive a program write me for one.

This is a medical meeting and not a golf-stick, trap-gun gathering. If you want to hear intelligent men talk interestingly and instructively on important medical subjects, come.

Most of us can still learn a little.

Dr. A. F. Cooper,
Bank of Commerce Building, Memphis, Tenn.

NEW ORLEANS PURE MILK SOCIETY.

The activities of the Pure Milk Society are well shown by the recent report of the Bacteriologist and Inspector of the Certified Milk Commission, H. N. Heffernan. During the months of October and November, the report being dated December 1, 65 samples of milk were collected and examined, and 232 other samples were gotten together for examination. A total of 905 bacteriological and chemical examinations were made in the laboratory. One thousand four hundred sixty-five head of cows and bulls were subjected to physician examination, and 289 cattle were tested for tuberculosis. Two hundred fifty-eight herd milk samples were examined, and 16 dairies inspected. The Commission has two dairies from which certified milk may be purchased, the Colonial Dairy and Cloverland Dairy. Inspected milk may be secured from the Gillis Dairy and the Gregory-Jung Dairy.

tribution in other diseases which he studied with "an extraordinary ingenuity and artistry."

Dr. Simon Flexner, director of the institute, gave a picture of Dr. Noguchi's life, from his childhood in a little northern Japanese village to the peak of his career. Dr. Flexner said he first met Dr. Noguchi during the Spanish-American War, when he was a member of a Johns Hopkins University Commission sent to the Philippines to study epidemic diseases. Stopping over in Japan, he met the young doctor, who expressed a desire to come to America.

The story was told of how Noguchi landed here with only a few dollars. Handicapped by lack of funds and a poor knowledge of this country's customs, Noguchi was none the less deterred in his determination to contribute to human welfare, Dr. Flexner said.

Others who spoke were Dr. George E. Vincent, president of the Rockefeller Foundation; Dr. Theobald Smith of the Rockefeller Institute, and Setsuzo Sawada, counsellor of the Japanese Embassy at Washington.—New York Times, December 21, 1928.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

CHILDREN'S CLINIC

The Mississippi Society for Crippled Children at the end of the first week in December completed, at Oxford, the Crippled Children's Clinic for northeast Mississippi. Fifty-five children were examined and forty-seven of these were recommended for treatment. The local Kiwanis, Rotary Clubs, the P. T. A., Junior Chamber of Commerce, County Superintendent of Education, medical students from the University of Mississippi were among the organizations cooperating in this work.

Dr. T. W. Foster, aged 78 years, of Tchula, died November 27. He was a native of Madison County but had practiced in Holmes County for many years. He was a member of the Methodist Church, Masons and Eastern Star and was also the local railroad physician. He was buried in Tchula.

The Journal extends its heartfelt sympathy to his bereaved family.

HOSPITAL ORGANIZED

December 8, the Newton Infirmary, Newton, Mississippi, formally opened and organized its staff. The institution was recently purchased by Drs. M. L. Flynt and H. McMullan, and has been repaired and enlarged.

Regular staff members are: Drs. R. W. Hall, A. G. Pouchstone, R. C. Stingley, M. L. Flynt, Dudley Stennis, T. E. Jardis and H. McMullan. Visiting staff members are: Drs. Henry Boswell, E. E. Kemp, W. C. Polk, W. T. Hunter, S. A. Majure, C. D. Gilmore, T. L. Gandy, W. C. Lamb, A. M. Harelson, A. L. Majure and Dr. Arrington.

Officers are: Dr. M. L. Flynt, President; Dr. Dudley Stennis and Dr. T. E. Jardis, vice-presidents.

Dr. Coleman C. Burns has recently settled in Greenville where he is specializing in diseases of the eye, ear, nose and throat. Dr. Burns is a graduate of the Medical College, University of Tennessee, and formerly resided in Memphis.

Dr. William Ross May of Amory, Mississippi, has been appointed head of the new Lincoln County health unit by the board of supervisors. He is a graduate of the University of Mississippi and Tulane University; has had extensive hospital experience and five years practice.

The Tri-County Medical Society met in Brookhaven, December 12, and elected officers for the ensuing year as follows:

President—Dr. B. S. Waller, Silver Creek.

Vice-Presidents—Dr. D. T. Langston, New Hebron; Dr. H. R. Fairfax, Brookhaven; Dr. L. W. Brock, McComb; Dr. R. E. Sylerstein, Tylertown; Dr. C. L. Simmons, Hazlehurst.

Secretary-treasurer—Dr. J. K. Markette, Brookhaven.

Legal Counsellor—Dr. F. E. Collins, Brookhaven.

Delegates—Dr. O. N. Arrington, Brookhaven; Dr. W. L. Little, Wesson; Dr. A. B. Harvey, Tylertown; Dr. F. F. Conn, Monticello; Dr. R. H. Brumfield, McComb.

Dr. E. B. French and Dr. R. H. Brumfield were the essayists.

The next meeting was announced for March 12 to be held in Brookhaven.

ORAL HYGIENE

Miss Gladys Eylich, director of oral hygiene for the Mississippi Board of Health, has announced that the third 100 per cent school in the state for this term in dental corrections is the Cary school of Sharkey County. Work there was carried on in cooperation with the local Red Cross, the organization obtaining and paying for the services of a dentist.

The last semi-annual meeting of the Clarksdale and Six Counties Medical Society was held in Clarksdale, November 7. Officers for the ensuing year are as follows:

President—Dr. H. G. Johnson, Dundee.

Vice-presidents—Boliver, J. L. Nichols; Coahoma, J. W. Henderson; Tallahatchie, J. G. Backstrom; Tunica, M. B. Jernberg; Quitman, M. V. Kirby.

Member of Board of Censors: J. W. Henderson.

Secretary—D. V. Galloway.

The program was as follows:

1. Radium Therapy in Cancer of the Cervix—A. B. Carney, Clarksdale.
2. Fracture of the Surgical Neck of the Humerus—T. C. Mitchell, Clarksdale.
3. Otitis Media—E. Leroy Wilkins, Clarksdale.

4. Pellagra—J. A. Slack, Friars Point.
5. Malaria (President's address)—J. D. Biles, Sumner.
6. Plasmochin—L. H. Brevard, Dundee.
7. Syphilis of the Lung—H. L. Cockerham, Gunnison.
8. Examination of Children's Ears—Eugene Rosamond, Memphis.
9. False Neuromata—T. G. Hughes, Clarksdale.
10. Needs of our State and Local Associations—Dr. W. H. Frizell, Brookhaven.

At the banquet which followed the evening session the notable events were an informal talk by Dr. F. J. Underwood, Executive Officer of the State Board of Health.

At an informal meeting the Coahoma County doctors decided to reorganize the Coahoma County Medical Society and the fifth of December was set for the first meeting.

On December 11 the Issaquena-Sharkey-Warren Counties Medical Society met in Vicksburg. The formal program was:

1. Throat Infections in General Medicine—Dr. J. H. Musser, Professor of Medicine, Tulane University College of Medicine, New Orleans.
2. Goitre in Some of its Phases—Dr. E. M. Holder, Professor of Surgery, University of Tennessee College of Medicine, Memphis.
3. Mechanism of Reduction of the More Common Fractures—Dr. Guy A. Caldwell, Orthopedic Surgeon, Shreveport.

It was reported that this was an unusually good meeting. In addition to the members and the invited guests from Louisiana and Mississippi, the Mississippi County Health Officers and Inspectors temporarily adjourned their meeting in Jackson and attended the Vicksburg meeting.

Dr. A. T. McCormick of Louisville, Kentucky, transferred his scheduled address from Jackson to Vicksburg. His subject was, The Doctor's Duty to the Community in the Prevention of Disease.

At this meeting officers were elected for the ensuing year:

President—Dr. W. C. Pool, Cary.
 Vice-presidents—Issaquena: Dr. T. W. Huey, Grace; Sharkey: Dr. L. E. Martin, Anguilla; Warren: Dr. Hugh H. Johnston, Vicksburg.
 Secretary-treasurer—Dr. L. S. Lippincott, Vicksburg.

Board of Censors—three years, Dr. Augustus Street, Vicksburg; two years, Dr. H. S. Goodman, Cary.

Member of Committee on Medical Defense—Dr. E. F. Howard, Vicksburg.

During the latter part of November Dr. L. L. Lumsden, Director of Rural Sanitation, United States Public Health Service, was in Mississippi for several days for the purpose of inspecting the full time health units. After his work in Mississippi, he was scheduled to make inspections in Tennessee.

Dr. Henry E. Austin, psychiatrist at the East Mississippi Insane Hospital in Meridian, has accepted a position as chief medical officer at the Veterans Bureau hospital in Philadelphia, Pennsylvania, and was scheduled to leave for his new position about December 15.

HOSPITAL CLOSED ON ACCOUNT OF INFLUENZA

Early in December the South Mississippi Charity Hospital at Laurel was closed to the admission of new patients because of an epidemic of influenza among the patients, doctors and nurses. The out-patient clinic was discontinued and no visitors were allowed in the hospital. At the last report, the condition is said to be improving.

The South Mississippi Medical Society was scheduled to meet in Laurel, Mississippi, on December 13. The following were the essayists: Dr. W. A. Dearman, Gulfport; Dr. R. W. Hall, Jackson; Dr. C. G. Wright, Hattiesburg; Dr. C. S. Holbrook, New Orleans; Dr. C. E. Burnham, Bay Springs; Dr. J. S. Gatlin, Laurel; Dr. C. M. Davis, Laurel.

Bills fostered by Gov. Bilbo for a central purchasing board for State institutions and another providing for a State Board of Charities were both defeated by the special session of the Legislature.

On December 3, the Adams County Board of Supervisors in a joint meeting with the Mayor and Board of Aldermen of Natchez elected Dr. B. D. Blackwelder to be Director of the new full time county health unit. Dr. Blackwelder is at present full time health officer in Holmes County.

The Vicksburg Sanitarium and Crawford Street Hospital held its regular monthly staff meeting in Vicksburg on December 10. The following program was given:

1. Chronic Abscess of the Breast Simulating Carcinoma—Dr. G. M. Street.

2. Carcinoma of the Stomach—Sleeve Resection—Dr. A. Street.

3. Traumatic Aneurism of the Radial Artery—Dr. J. A. K. Birchett, Jr.

4. Cerebro-spinal Syphilis—Dr. L. J. Clark.

5. Meningococcus Cerebro-spinal Meningitis—Dr. H. H. Johnston.

6. Demonstration of Selected Radiographic Studies:

- (1) Fracture of the hip.
- (2) Calcium deposit in thyroid gland
- (3) Sinusitis.
- (4) Aneurism of aorta.
- (5) Pulmonary tuberculosis.
- (6) Nephrolithiasis.
- (7) Pyloric obstruction.
- (8) Cholelithiasis.
- (9) Duodenal ulcer.

OUR PREVENTORIUM

Within a few months Mississippi will have a beautiful preventorium for children at the Tuberculosis Sanatorium. To my mind this institution as a composite part of our great institution at Magee will do a far greater service as an educational factor of far reaching importance and in the ultimate control of tuberculosis in the State than any previous step taken.

The teaching of selected children from the various communities and homes of the State how to live and how to prevent a breakdown in later life, will go a long way toward the prevention and final stamping out of tuberculosis. Susceptible children properly trained or educated in tuberculosis control in a modern Preventorium and sent back into the various communities of the state will eventually react for more cooperative community work in hygienic matters, better and more strict enforcement of the anti-spitting laws, better and more strict regulations for handling milk, more careful medical observation of all individuals, a better and broader view of educational matters in public health, and finally a better and healthier citizenship.

Some of the reasons for this institutional care are:

1. Safeguarding the child from tuberculous parents or relatives—in this way preventing continuous infection.

2. Discipline in habits and modes of living, at an age which is most impressionable.

3. Making an asset to the community of an individual who would otherwise be a liability.

4. The child going home to his own community leads others into ways and requisites for better health.

5. These little ones will be saved from years of invalidism or perhaps death from tuberculosis and will not become just so many sources of the spread of infection.

Mississippi is making a tremendous effort along the lines of disease prevention and control. It is well to spend more money for the prevention and control of all communicable diseases and then eventually less and less money for the cure of diseases in state supported hospitals. Fifty years, which is after all much less than an average lifetime, from today very much smaller appropriations should be necessary for charity, insane and tuberculosis hospitals, feeble-minded institutions, etc. Adequate public health programs properly supported and administered will do the job. These institutions for the treatment of disease only have been supported for all the years that are past and are becoming a greater necessary burden to the taxpayer every year. Reason it out for yourself. Get behind a real state-wide program of prevention of disease, begin at the source of our trouble and not spend all of our time and money on the curative end—work at both ends of the problem at the same time.

The conference of County Health Officers and Sanitary Inspectors was held in Jackson, Mississippi, on December 11-13, 1928. Their program was as follows:

1. Brewers' Yeast in Pellagra—Dr. A. K. Barrier, Rolling Fork.

2. Illegal Practitioners—Dr. J. C. Rush, Waynesboro.

3. Public Health Educational Campaign—Dr. F. Michael Smith, Vicksburg.

4. Venereal Disease Control—Dr. O. C. Wenger, Hot Springs, Ark.

5. Scarlet Fever—Dr. H. C. Ricks, Jackson.

6. Control of Diphtheria—Dr. T. W. Kemmerer, Jackson.

7. Round Table Discussion of Program for Part-Time County Health Officer—W. H. Anderson, Booneville.

8. Round Table Discussion of Medical Inspection of School Children—Dr. B. T. Tobinon, New Augusta.

9. Public Health Records—Dr. J. H. Janney, Indiana.

10. Vital Statistics in Kentucky—J. F. Blackerby, Louisville, Ky.

11. New Methods of the Bureau of Vital Statistics—Dr. R. N. Whitfield, Jackson.

12. Disease Causation and Prevention—Dr. C. C. Applewhite, Jackson.

13. Methods of Selling the Privy Idea to the Public—M. A. Crawford, Meridian.

14. Privy Construction—John B. Grant, Vicksburg.

15. Septic Tank Construction. Safe Water Supplies—H. A. Kroeze, Jackson.

16. Standard Milk Ordinance and Enforcement—H. A. Kroeze, Jackson.

17. O'Tolidin Test for Strength of Chlorine Solution, Demonstration of Methylene Blue Reductase Test—Dr. N. M. Parker, Jackson.

18. Standardization of Laboratory Procedure and Checking—Dr. T. W. Kemmerer, Jackson.

19. Interpretation of Milk Regulations—General discussion.

20. Municipal Inspections—Floyd Ratcliff, Jackson.

21. Mosquito Control—Nelson H. Rector, Clarksdale.

22. The Use of Maps, Charts and Graphs—George Parker, Jackson.

23. Ordinances—H. A. Kroeze, Jackson.

As reported elsewhere in these columns the address by Dr. A. T. McCormack, State Health Officer, Louisville, Kentucky, was delivered before the Issaquena-Sharkey-Warren Counties Medical Society which meeting was attended in a body by the conference.

CORRECTION

In the December issue of the Journal, Mississippi News, it is stated that 72 per cent of the white children in Laurel have gold teeth. This should read good.

CANCER NOW SECOND AS CAUSE OF DEATH.—Cancer and other malignant tumors jumped into second place as a cause of death in the United States in 1927. Deaths from cancer in that year, the Department of Commerce announced today, totaled 103,578, as compared with 99,833 in 1926.

The death rate from cancer in 1927 was 95.6 per 100,000 estimated population, compared with 94.9 per 100,000 in 1926. Cancer ranked second only to diseases of the heart as a death cause in 1927. In 1926 cancer ranked fourth, heart diseases being first, pneumonia second and nephritis third.

The total deaths in the United States in 1927 was 1,236,949 within the official death registration area, representing a death rate of 11.4 per 1,000 population—the lowest since 1900.

In 1926 there were 1,285,927 deaths in the registration area, a death rate of 12.2 per 1,000.

The registration area in 1927 comprised forty-two States, the District of Columbia, and twenty-one cities in non-registration States, with an estimated population on July 1, 1927, of 108,327,000, or 91.3 per cent of the estimated population of the United States.

The principal decreases in death rates in 1927 were from pneumonia, all forms, from 103 to 81 per 100,000 population; influenza from 41 to 23; tuberculosis, all forms, from 87 to 81; diarrhea and enteritis (under two years) from 27 to 22; nephritis from 98 to 93; measles from 8 to 4, and diseases of the heart from 199 to 196.

The death rate from automobile accidents increased from 17.9 per 100,000 in 1926 to 19.5 per 100,000 in 1927. The number killed in automobile accidents, excluding collision with railroad trains and street cars, was 21,160, compared with 18,871 in 1926.

In addition, 1,676 were killed in automobile collisions with railroad trains in 1927, compared with 1,556 in 1926, and 476 were killed in automobile collisions with street cars in 1927, compared with 464 in 1926.

The suicide death in 1927 was 13.3 per 100,000 population, as compared with 12.8 in 1926. The number of suicides was 14,356 in 1927, as against 13,410 in 1926.

The number of homicides grew from 9,210 in 1926 to 9,470 in 1927, but the homicide death rate fell from 8.8 in 1926 to 8.7 per 100,000 in 1927.—The New York Times, December 21, 1928.

BOOK REVIEWS

Textbook of Fractures and Dislocations: By Kellogg Speed, S. B., M. D., F. A. C. S. 2d ed. Philadelphia, Lea & Febiger. 1928. pp. 952.

This volume is particularly valuable because of the care which the author exercises in his attention to minute details. He does not take for granted that the readers may already know certain things. In doing this the wide experience of Dr. Speed, both in the practice of the subject under consideration, and in teaching is everywhere manifest. Each chapter may well be considered a lecture on a particular subject.

There are certain points about which one might take issue with the author, but on the whole, this book may be considered one of the most valuable texts on the subject of fractures and dislocations, which has been published in recent years.

ISIDORE COHN, M. D.

The Treatment of Diabetes Mellitus: By Elliott P. Joslin, M. D., M. A. 4th ed., enl., and rewritten. Illustrated. Philadelphia, Lea & Febiger. 1928. pp. 998.

Dr. Joslin might very well adopt a paraphrase of the old motto, "Nothing of human interest is foreign to me," and declare "Nothing concerning diabetes is indifferent to me." His monograph is a veritable storehouse of information not only of facts concerning the clinical picture of diabetes but of the underlying perverted function and of the history of the development of modern conceptions concerning the disease. There is no question which might arise in the mind of the clinician or of the investigator in this domain concerning which they may not find in this book valuable and sound information and a guide to the sources. To one who has seen the development of the work from its first edition, the appearance of this new fourth edition is a source of solid satisfaction. It contains so much new material that it is in large measure a new work. Neither the practitioner nor the medical student should look upon it as intended chiefly or entirely for the specialist nor should they be frightened by the size of the book which has now reached approximately 1000 pages. Dr. Joslin's style has always made its reading easy and stimulating. Considering the importance of diabetes mellitus as a cause of illness and of death in the United States, no doctor can afford not to be thoroughly posted concerning it nor can the care of diabetes in general be referred to specialists. Joslin estimates there are 1,400,000 diabetics in the United States (over 1 per cent of the population). The death rates from diabetes per 100,000 population has risen from

2.8 per cent in 1880 to 9.7 per cent in 1900 to 14.9 per cent in 1910 and 16.9 per cent in 1925. Between 1880 and 1925 the percentage of diabetic deaths to total deaths rose tenfold to 1.43 per cent. In 1900 diabetes ranked twenty-seventh as a cause of death in the registration area of the United States but in 1920 it was twelfth.

There is probably in the whole field of medicine no chapter of more fascinating interest than that of diabetes. In no other field is the diagnosis, therapy and general management so soundly based upon scientific experimentation and definite almost mathematical laboratory demonstration. In no other field has the development of knowledge proceeded in such a logical, orderly and accurate manner. From the time of the demonstration in 1889 by von Mering and Minkowski of diabetes in dogs following pancreatectomy there has been a steady march of progress; no accidental discovery has been made but each step has depended upon the one before and has in its turn indicated its successor. Opie in 1901 and Ssobolew in 1902 showed that the islands described by Langerhans in 1869 were the elements of the gland involved in diabetes. Ssobolew discovered that ligation of the pancreatic duct produced atrophy of the acinous tissue only and not of the islands and no diabetes. Schafer in 1916 prophesied the discovery of the hypothetical internal secretion of the Langerhans islands and proposed the name of insulin for it; finally the trail culminated in the isolation of insulin by Banting and Best in the laboratory of Professor Macleod at Toronto in 1921. Nor is the interest of the reader and student left satiated by this record of the past. Joslin indicates many points still not clear and open to controversy and further investigation. There is for example the question of the relation of diabetic coma to acidosis and the very practical question as to whether coma is best treated with or without alkalies. Joslin, as is well known, is much opposed to the use of soda on theoretical grounds as likely to produce alkalosis. The reviewer believes firmly that Joslin has demonstrated practically that the use of soda is not necessary. My experience in a series of coma cases exactly parallels his.

One may summarize the merits of Dr. Joslin's work by saying that it is not only a reference book for all questions concerning diabetes, not only a most interesting and authoritative work but also a practical and definite guide to the practitioner. It justly deserves a place on the shelves of his library and its pages should be well thumbed.

I. I. LEMANN, M. D.

Pocket Medical Dictionary: By George M. Gould, A. M., M. D. 9th ed. rev. Philadelphia, P. Blakiston Son & Co. 1928. pp. 922.

This revision of Dr. Gould's well-known pocket dictionary contains pronunciation and definition of the principal words used in medicine and its related sciences. There are complete tables of the arteries, muscles, nerves, bacteria, bacilli, micrococci, spirilla and thermometric scales and a revised dose list of drugs and their incompatibilities, in the English and metric systems of weights and measures, based upon the tenth revision of the U. S. pharmacopœia, and a revised veterinary dose table.

In these days of changing and voluminous nomenclature, an up-to-date dictionary is an essential part of the well-informed physicians armamentarium.

M. L. MARSHALL.

Syphilis: By Henry H. Hazen, A. M., M. D. Illus. St. Louis, C. V. Mosby Company. 1928. pp. 643.

Dr. Hazen has presented in one volume information of inestimable value. It is hardly conceivable to think that so large a subject as syphilis could be covered in so thorough a manner as Dr. Hazen and his collaborators have succeeded in doing in this single book. The anatomical structures are described individually in a most thorough manner with differential diagnoses and a complete bibliography with each chapter so that the reader may refer to the original articles cited.

The illustrations are numerous and very good, of particular interest to the urologist is the chapter by Dr. H. A. Fowler on the Genito-Urinary System.

MONROE WOLF, M. D.

Modern Medicine: By Sir William Osler, Bart., M. D., F. R. S., re-edited by Thomas McCrae, M. D., assisted by Elmer Funk, M. D. Philadelphia, Lea & Febiger. 1928. pp. 964.

This volume is the sixth in number of Osler's *Modern Medicine* and deals exclusively with diseases of the nervous system and diseases and abnormalities of the mind. The collaborators are the representative men in the field of neuropsychiatry in America and abroad. This third revised edition can be used as a *tole et lege* type of collateral reading for the general medical man whose spare time is limited, and as an adjunct to the book shelf of the neuropsychiatrist. It is thoroughly and correctly written.

The chapter on acute encephalitis and brain abscess, by the late E. E. Southard, M. D., revised by J. Ramsay Hunt, M. D., and likewise the chapter following by J. Ramsay Hunt, M. D., covers the detailed matter throughout using the scheme term of encephalopathy covering encephalitis and its vagaries. The paragraph therein on influenzal encephalitis and likewise the following chapter throughout should be instructive to the present day physician, inasmuch as many of our cases of encephalitis *cum et sine lethargica* can be traced to a so-called attack of influenza at a past period.

A meagre forty-three pages is given to the diseases and abnormalities of the mind, not sufficiently abstracted for the general practitioner. In these pages, while well written, the subject matter therein is pruned to a rhetorical minimum. A series of case histories incorporated under each abnormality would convey more rapidly to the reader a description leading to a more conclusive opinion.

WALTER J. OTIS, M. D.

Modern Medicine, Its Theory and Practice: Ed. by Sir William Osler, Bart., M. D., F. R. S. 3d ed., thoroughly rev. Re-ed. by Thomas McCrae, M. D., assisted by Elmer H. Funk, M. D. General index volume. Philadelphia, Lea & Febiger, 1928. pp. 126.

An analytic index, such as the volume herewith presented is an essential element to any reader gain the desired information with speed and facility. The publication of an adequate index makes of this system, a reference work of prime importance to every physician.

M. L. MARSHALL.

Diseases of the Ear, Nose and Throat: By Wendell Christopher Phillips, M. D. 7th ed. Philadelphia, F. A. Davis Co. 1928. pp. 922.

This book by an ex-president of the American Medical Association is an excellent revision of the former text by this author. An illustration of the confidence the volume enjoys among the profession is its widespread adoption as a text in medical schools.

A little more than half of the book is devoted to the ear, and completely covers the field of otology. A new chapter, "The Hearing Problem," is timely in surveying this important and much neglected subject. Recent advances in the treatment of infantile mastoiditis are described. Obsolete clinical and operative procedure are eliminated. The diseases of the nose and accessory sinuses are well covered. Variations in technique of submucous resection are described. In radical operation for chronic frontal sinusitis the author favors the Killian operation.

The laryngeal section is noteworthy. The operation of laryngectomy featuring the procedure of McKenty is particularly good. The technique of suspension laryngoscopy as used by Lynch of New Orleans is well described and it is to Lynch that the author gives credit for the perfected suspension instrument of today.

The technique of bronchoscopy and esophagoscopy is given according to the methods used by Jackson and his staff at the Chevalier Jackson bronchoscopic clinic in Philadelphia. Reproductions of some of the paintings by Chevalier Jackson illustrating bronchoscopic views of pathology are used. Various bronchoscopic instruments devised by Tucker, Clerf, Mosher, Lukens and Moore are described.

In the description of tracheotomy the author says: "The high tracheotomy operation is preferable to the tracheotomie inférieure of Trousseau, the hemorrhage in the former being much less." Most laryngologists prefer low tracheotomy as less likely to lead to laryngeal stenosis. Jackson advises that the tracheotomic incision be made below the second ring of the trachea.

The book is well written, well illustrated and remarkably free from typographical errors.

H. KEARNEY, M. D.

Ultra-Violet Rays in the Treatment and Cure of Disease: By Percy Hall, M. R. C. S. (Eng.), L. R. C. P. (Lond.). 3d ed. St. Louis, C. V. Mosby Co. 1928. pp. 230.

This book contains twenty-six chapters of interesting reading matter and there are sixty-four illustrations, the greater number being utilized to illustrate physio-therapy apparatus.

The author's method of applying the ultra-violet rays in disease conditions is fully explained, employing only the most modern methods of application.

This book is recommended to all physicians interested in physio-therapy.

LEON J. MENVILLE, M. D.

Recent Advances in Physiology: By C. Lovatt, Evans, D. S. C. (Lond.), M. R. C. S., L. R. C. F., F. R. S. 3d Ed. Philadelphia, P. Blakiston's Son and Company. 1928. 397 pp.

This is one of the valuable series of "Recent Advances" which includes similar works on Anatomy, Biochemistry, Medicine, Surgery, etc. This volume will be found particularly interesting in connection with the one on Biochemistry with which it has numerous points of contact.

This book may be called an Elementary Text-Book of Advanced Physiology. Its aim is to present to the student who has worked through an ordinary text-book an account of some of the

problems with which physiologists have been concerned during recent years, and thus to serve, not only to enrich the student's knowledge as regards subjects of contemporary interest, but also to form a convenient bridge by which he may, if he feels so disposed, pass more readily into the original literature of those subjects. Not only the student of Physiology, however, but the Physiologist and the Internist will feel repaid for studying the account of some of the branches of Physiology in which recent advances are being made.

Two new chapters—on "Excitability and Chronaxia" and "The Nervous Impulse"—have been added to this edition. In order to make room for them, three chapters have been omitted from among those of the second edition. All the remaining chapters have been considerably revised. The three chapters omitted dealt with Blood Corpuscles, Blood Plasma, Suspension Stability of the Blood and the Evidence of Blood Destruction. Even with the addition of the new material, the size of the book has been increased by only 40 pages.

A list of some of the subjects treated, indicates the particular appeal of this work, Tissue Oxidations; The Application to the Physiology of Muscular Exercise in Man of the Results of Researches on the Chemistry and Physics of Contraction; Conditioned Reflexes, prepared with the direct help of Dr. G. V. Anrep, a pupil of Pavlov; Thyroxin, Pituitary Principle, Insulin, Parathyroid; The Carriage of Carbon Dioxide by the Blood; Blood Reaction, including a Discussion of Buffers, the H- electrode, the Indicator Method; Capillary Circulation.

HENRY J. LAURENS, Ph.D.

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FUNGUS INFECTIONS OF THE HANDS AND FEET.*

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NEW ORLEANS.

INTRODUCTION

Having studied a great many chronic inflammatory lesions of the hands and feet by various laboratory means with a view of establishing the etiologic factors concerned in their production, I have come to the conclusion that the groups of microscopic plants represented by the higher bacteria and fungi are much more commonly concerned in the production of lesions in these exposed portions of the body than we have been wont to consider them. For instance, Stelwagon,⁽¹⁾ in that familiar text-book of American physicians, "Diseases of the Skin," states that fungus infections, ringworm in particular, may in rare instances show themselves on the hands, fingers, feet or in the interdigital spaces. He describes onychomycosis as a comparatively "rare" disease. Sutton's book,⁽²⁾ published as recently as 1926, gives a few beautiful pictures of trichophytosis of the nails, the palms of the hands and soles of the feet, but at the same time leads the reader to presume that these lesions are by no means common by the statement that such lesions "may occur."

By extending the scope of my examinations to include the nails of individuals with chronic and recurrent ulcerative lesions, of eczemas between the toes, pompholyx and eczematoid conditions of the epithelium of the hands and feet, I have been convinced that not only are many of these lesions parasitic (fungal) in origin, but that the focus of infection and *continued reinfection* of the epithelium of these parts of the body at least does occur by transplantation of fungi that are more or less continuously growing in the hornified epithelial cells comprising the nails, and particularly the toe nails. All of the members of the ringworm group of fungi are capable of living in this modified epithelium, and while the rate of growth here is almost incredibly slow, the growth extending upward toward the matrix at about the same rate as the cells proliferate and are pushed downward, they thus provide a constant source of infection over a period of years. Sequeira⁽³⁾ mentions eczematoid ringworm of the toes as a "complication" of *Tinea cruris*, and that when present it may persist for years with recurrences after apparent cure of the primary lesion.

It is my belief that trichophyton infection of the nails is the common etiologic fungus of onychomycosis rather than fungi of the genus *Epidermophyton*, and that the majority of adults in this community and climate, at least, may be demonstrated, with the aid of the microscope, to be infected.

*Read before Orleans Parish Medical Society, October 22, 1928.

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Deforming dystrophies of the nails are generally supposed to be due to *inherited* diseases, trauma and occupational injuries. Infections of the nails with members of the ringworm group are supposed to produce softening of the nails with resultant erosion. With precise methods of digesting the nails and liberating and concentrating the fungi without destroying their morphology beyond accurate identification with the microscope it is really astonishing how many of these conditions may be demonstrated to represent merely the result of a fungus infection that has been present from early childhood.

The ability to "diagnose" disease in general still remains more of an art than a science in many instances in that when given a particular symptom complex one must first "suspect" a particular type of disease process and then endeavor to prove the correctness of the suspicion. This method of diagnosis applies with particular emphasis in the laboratory demonstration of the varied types of pathogenic fungi.

Considering all of the above lengthy introduction, I would like to briefly review the classification of the microscopic vegetable parasites that I have encountered in lesions of the hands and feet, pointing out the gross characteristics of the diseases and methods of search for the probable etiologic fungus, and to present a method of demonstrating fungi in skin, tissue, and nail infections that has given me the best results.

CLASSIFICATION OF FUNGI

There are a large number of various species of higher bacteria and fungi that may infest such exposed parts of the body as the hands or such well incubated surfaces of the body as the well shod feet of a denizen of the hot asphalt of our modern cities, and whose socks are usually washed "out." In general these infections fall more or less in groups, according to their botanical classification. Specific case reports are all too prone to refer to some

particular species of fungus infection and the medical journal reader soon becomes impressed with the multiplicity of possible fungus infections rather than the few general types of infection really existing and representing fungi of the various *genera*. The classification of pathogenic higher bacteria and fungi as found in our current medical literature is too confused to mention. The following table is a practical working guide that has been found useful in teaching my medical students, at least.

PHYLUM THALLOPHYTA

Microscopic plants or vegetables whose body includes one or many cells, form a more or less branched structure, and many varieties of which are parasitic upon man or lower animals by virtue of their ability to grow and multiply in or on the body of their host. This division of the vegetable kingdom may be divided as follows:

Group I. Schizomyetes (bacteria).

Family 1—Coccaceae.

Family 2—Bacteriaceae.

Family 3—Spirillaceae.

Group II. Trichomycetes (higher bacteria; bacteria growing in filamentous forms).

Genus *Leptothrix* (with no branching).

Genus *Cladothrix* (false branching).

Genus *Nocardia* (*Streptothrix*) (true branching spores).

Genus *Actinocyetes* (branching; no spores).

Group III. Hyphomycetes (yeasts and fungi or moulds).

Genus *Saccharomyces* (budding fungi; yeast-like or simple mycelial tubes).

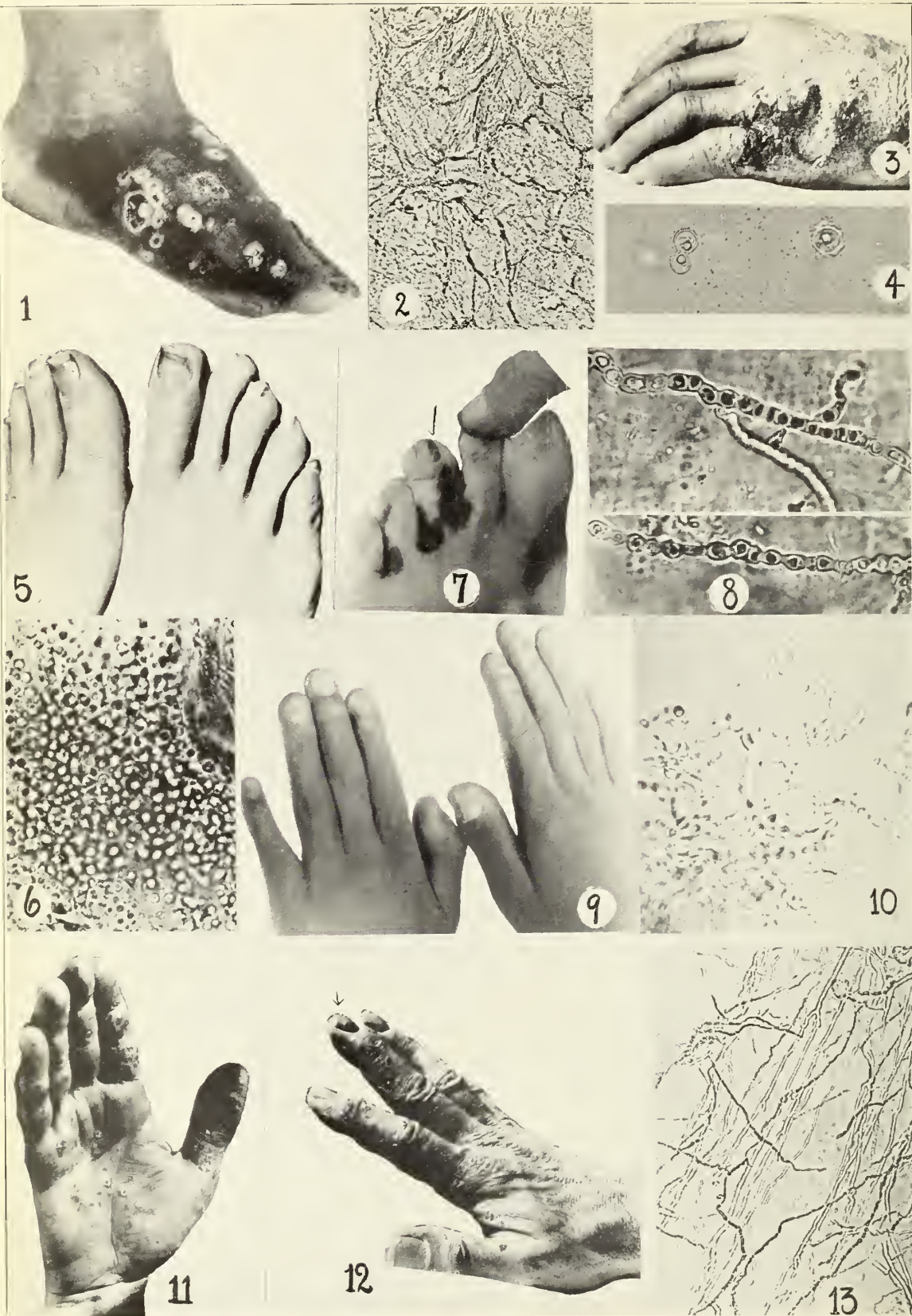
Monilia (fermenting sugars).

Oidia (no fermentation of sugars).

Cryptococci (double-walled, budding fungi).

Genus *Microsporum*—*M. audouini* (type).

Parasitic in hairs and hair follicles.



Mycelia and spores (small).

Cultures have hyphae bearing sessile conidia and septate fusiform bodies.

Lesions have no scutula.

Genus *Trichophyton*—*T. tonsurans* (type).

Parasitic in hair and nails and adjacent epithelium.

Mycelia, mycelial spores, and chlamydospores in lesions.

Conidial bearing hyphae in cultures.

Genus *Epidermophyton*—*E. cruris* (type).

Parasitic in skin. Does not invade hair or hair follicles.

Mycelial filaments and spores in lesions. Pluriseptate spindles in cultures.

Genus *Achorion* (mycelial filaments and spores producing scutula about hair shaft).

Genus *Sporotrichum* (Mycelial filaments or spores in lesions, and producing conidiospores in cultures).

Genus *Penicillium* (mycelia or spores in lesions. Fruit bearing hypha with sterigmata and conidia in culture).

Genus *Aspergillus* (Mycelia or spores in lesions. The conidiophore hyphae terminate into ovoid formations supporting sterigmata bearing a chain of conidia).

Genus *Sterigmatocystis* (Mycelia or spores in lesions. Conidiophore terminating in oval formation with primary and secondary sterigmata bearing the conidia).

TYPES OF LESIONS PRODUCED BY FUNGI OF THE VARIOUS GENERA

Actinocycosis is the clinical name given to many infections by filamentous organisms of the group of trichomycetes. Some varieties, such as the true actinocycetes, are quite virulent. Practically all of them produce a *chronic suppurative process* tending to involve the periosteum and bone, and are characterized by the production of discharging sinuses with crateriform outlets. Morphologically they are long, thin, bacilliform structures and often take ordinary stains poorly (Plate I. Figs. 1 and 2). When growing in the tissue the filaments grow in huge colonies, and as the lesions are always secondarily infected with pyogenic bacteria, many of these colonies are liberated in toto by the necrosis of the tissue. For diagnosis large quantities of pus must be searched carefully for yellow, white, black or red granules which consist of enormous masses of the mycelial filaments. A plain "smear" of pus as is routinely made for microscopic examination is not sufficient to demonstrate the presence of such an infection.

Blastomycosis is a group of diseases caused by several members of the genus *Saccharomycetes*. The simple yeasts (monilia) often secondarily invade the necrotic tissue produced by pyogenic bacteria in open lesions, but the only common primary infection by fungi of this group that I have encountered is with Gilchrist's cryptococcus, or *Cryptococcus gilchristi*. This is a double-cell-walled, yeast-like or budding fungus, which produces an oval or circular lesions of the skin and subcuta-

PLATE I.

Fig. 1—Actinomycosis of foot.

Fig. 2—Portion of actinomycotic granule flattened out by pressure from a cover glass and viewed under the high dry (4 m.m.) lens of the microscope.

Fig. 3—Blastomycosis of the hand.

Fig. 4—Blastomycetes digested free from tissue and exudate and viewed with high dry (4 m.m.) lens.

Fig. 5—Microsporosis of toe nails.

Fig. 6—Microsporons from digests of diseased portions of nails shown in Fig. 5, and photographed with the high dry (4 m.m.) lens.

Fig. 7—Interdigital intertrigo or eczema. The toe nail indicated by arrow was also diseased.

Fig. 8—Trichophytions recovered from scrapings between the infected toes and the diseased nail shown in Fig. 7.

Fig. 9—Finger nails of a very young negro boy resembling in some respects congenital dystrophy of the nails.

Fig. 10—Enormous numbers of trichophytions recovered from portions of nails shown in Fig. 10.

Fig. 11 and 12—Recurrent parasitic pompholyx associated with erosions of the finger nails and gross trichophytic involvement of the toe nails.

Fig. 13—Trichophytions recovered from lesions shown in Figs. 11 and 12.

neous tissue characterized by masses of semi-necrotic granulation tissue. These areas may coalesce to form quite an irregular pattern. Large discharging sinuses do not occur. The fungi may be demonstrated directly in preparations of the necrotic material, but are best found in larger quantities of granulation tissue digested for several hours (until barely disintegrated) in ten per cent sodium hydroxide solution and concentrated as will be described later (Plate I, Figs. 3 and 4).

MICROSPOROSIS, TRICHOPHYTOSIS AND
EPIDERMOPHYTOSIS

These fungi of the ringworm group are apparently only capable of growing in the epidermis and the modified epithelium comprising its appendages, the hairs and nails. There are many different species of each of these genera and their accurate classification by means of slight morphologic or cultural differences seem to be utterly impossible. Even such a painstaking artist of nomenclature as Castellani⁽⁴⁾ may be found using even the *generic* names rather indiscriminately in referring to epidermophytos and microsporons in various parts of his book on tropical disease. The very listing of all the names these small plants bear in the usual list of synonyms merely tends to perpetuate the existing confusion.

For practical purposes, I have classified these groups as regards their demonstrated cultural differences, as shown by their selected habitat as parasites. Microsporons seem to be limited to the superficial layers of the non-hairy surfaces of the body, and they usually produce small spores. Trichophytos invade the deeper layers of the epidermis, the hairs, and nails, and they usually have larger spores than microsporons. Epidermophytos favor the semi-moist epithelial folds of the body, in the crural and axillary regions, for instance.

Upon the hands and feet the triphophytos produce by far the greater number

of infections (Plate I. Figs. 7, 8, 9, 10, 11, 12, 13, and Plate II, Figs. 1, 2, 3, 4, 5, 7 and 8). I have found only an occasional instance of small spored fungus (microsporon) producing white patches of softening of the nails with a very superficial exfoliative lesion of the epithelium of the feet. (Plate I. Figs. 5 and 6, and Plate II. Fig. 9).

From a therapeutic or a diagnostic standpoint, it usually suffices to demonstrate the presence of a definite ringworm fungus in the epithelial layers of lesions that may be present there or in adjacent appendages.

Demonstration of fungi that are growing within thick hornified modified epithelium with a high fat or wax content presents quite a problem to the laboratory technician. Portions of apparently diseased nails or scrapings from lesions may be removed and digested with hydroxide solutions, whereby epithelial structures are either removed or rendered transparent and the fungi which are protected by thick walls are left visible when properly viewed through the microscope. This process requires hours of time, and when carried on upon a microscope slide under a cover-glass results in only a very imperfect digestion of the edges of masses when they are of any appreciable size whatsoever. The digestion of large pieces of nails and tissue removals may better be carried out en masse in a test tube where the solution has free access to all portions of such removals and where the digesting fluid is in sufficient quantity to effect complete digestion of the quantity of tissue to be disintegrated.

In all such digestion residues certain fatty bodies are frequently found (Plate II. Fig. 6) which requires considerable technical skill to differentiate, particularly from spores of fungi. These fat bodies may be easily removed by extraction with ether, which also completes the disintegration of such clumps of epithelial cells



as may not be completely dissolved. Finally, by means of the centrifuge we may *concentrate* and *average* all of such removals to the extent that a single microscopic preparation represents the entire fungus content of all material entering into the process. Digestion by this means further liberates the mycelial filaments with all of the ramifications of its network of intricate branchings to present a picture far more easily recognizable than if such vine-like masses are broken up into short segments of individual spores in small fragments scraped from the nails. The technic may be thus summarized:

1. Cut or scrape as much epithelium from apparently diseased areas as possible. Areas of apparent disease or abnormality of the finger or toe nails are removed with a sharp knife.

2. Place fragments in a small round-bottomed test tube (12 x 115 mm.) and cover with several volumes of 10 per cent sodium or potassium hydroxide.

3. Allow to digest (preferably at body temperature) for 12 to 18 hours.

4. Add 2 volumes of ether. Stopper tube with finger and shake thoroughly.

PLATE II.

Figs. 1 and 2—Trichophyton infection of toe nail and foot with the fungi demonstrated by microscopic examination.

Figs. 3 and 4—Parasitic eczema of the dorsum of one hand, with pompholyx-like lesions of the palm and typical ringworm-like lesions on the wrist, associated with marked lesions of the finger and toe nails.

Fig. 5—Trichophytions recovered from lesions on wrist of hand shown in Fig. 4. Similar fungi were demonstrated in removals from the finger and toe nails.

Fig. 6—Fatty bodies frequently found in simple hydroxide digests of finger or toe nails. Note absence of endospores. Photographed with high dry (4 m.m.) lens.

Fig. 7 and 8—Terminal and middle portion of a trichophyton filament to show the definite endospores present and extending almost to the very tip of the filament. Photographed with high dry (4 m.m.) lens.

Fig. 9—Microsporons. Short mycelial filaments and small spores. Photographed with high dry (4 m.m.) lens.

Fig. 10—Culture of a drop of pus from a previously unopened lesion of sporotrichosis on glucose agar, incubated for 7 days.

Fig. 11—Sporotrichium filament and spores from culture shown in Fig. 10. Photographed with high dry (4 m.m.) lens.

Fig. 12—Mycelial filaments and fructifications as digested free from an exudate occurring under finger nail. Photographed with high dry (4 m.m.) lens.

5. Balance tube and centrifuge in electric machine (equipped with Cornell shields) at 1500-2000 r.p.m. for several minutes. Detritus which contains the spores and mycelia of fungi will collect *between* the two layers.

6. Carefully decant the ether from above the plug of detritus; and allow most of the hydroxide to flow out from under this plug as it floats above the heavy liquid when the tube is slowly tipped to one side.

7. Fill tube with water. Shake and recentrifugalize. The fungi, dirt particles and a few remaining epithelial cells pack in the bottom of the tube.

8. Decant the supernatant fluid. Transfer the sediment to a slide by means of a capillary pipette having a large lumen and equipped with a rubber bulb. Add a cover glass and examine with the 16 m.m. (low) and 4 m.m. (high-dry) lens after properly adjusting the light (Plate II. Figs. 7 and 8).

Aspergillosis. I have encountered only one apparently primary infection with this fungus (Plate II. Fig. 12). A centrally located collection of pus resting between the nail of the thumb and the nail bed was found. The pus contained innumerable mycelia with conidiophores and spores developing in situ. The patient stated that the nail had been removed twice before in the treatment of similar infections.

Sporotrichosis. Infections with fungi of this genus are not uncommon, the primary site of infection usually occurring upon the hand. This produces a chronic suppurative lesion with discharging sinus, and is soon followed by other lesions of the forearm along the course of the lymphatic drainage. Direct microscopic examination of the pus is usually futile, showing only such secondary contaminators as the staphylococcus group. Curettings of the base of the abscess for mycelia is rather difficult. Cultures made in glucose agar plates which are incubated for several days

or a week show numerous characteristic colonies of the fungus (Plate II. Fig 10) which is easily identified by microscopic examination (Plate II. Fig. 11). The colonies are at first white, soon turning a light brown in color.

SUMMARY.

Fungus infections, particularly with the two members of the ringworm group, trichophytons and microsporons, are quite common in semi-tropical climates.

The reservoir from which recurrent trichophyton infections of the epithelium of the hands and feet is in the nails.

Determination of the presence of triphophyton or microsporon infection of the nails is best made by digestion of visibly diseased tissue en masse with 10 per cent sodium hydroxide, extracted with ether and this digest concentrated by means of the centrifuge.

In the diagnosis of all chronic infections of the hands or feet, fungus infections should be considered, with the various laboratory methods of diagnosis pursued that have been found most suitable to demonstrate the type of higher bacteria or fungi indicated by a consideration of the physical characteristics of the lesions presenting.

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DISCUSSION.

Dr. M. T. Van Studdiford: Dr. Johns has very beautifully shown us a procedure for demonstrating and identifying the fungi of the nails. It is gratifying to know we have such a simple process,

because we can now demonstrate to our own satisfaction, and that of the patients, the presence of these fungi and less doubt remains in the patient's mind.

Drs. Sabouraud and Segueira have long contended that the failure of treatment of the feet was the re-infection from the nails. Dr. Johns has very well demonstrated that the infection can be produced in the nails experimentally and shown also that the reverse was far more easily accomplished.

One cannot be dogmatic about any treatment for any one condition; however in fungi infection of the nails of the fingers or toes one can say that treatment is most unsatisfactory. Dealing with a disease which inhibits every bathroom floor, golf dressing room, gymnasium mat, it would be hard to inhibit re-infection. In the Mississippi Valley where this disease is so very prevalent and resistant, I would say any lotion or ointment containing acid salicylic and acid benzoic applied at proper intervals would keep the upper hand of the infection, but only permanent removal of the nails or source of re-infection would complete a cure. Roentgen-rays or radium have little, if any, effect on the fungi and cannot be used for removing the nails. The slippers, old shoes and socks are a constant media for reinfecting their wearer. A trip to some cold climate will give the quickest temporary relief for the acute conditions.

Dr. F. M. Johns (closing): There is one point I wish to emphasize with reference to diagnosing actinomycotic infections. They occur always in chronic pus producing lesions. In looking for actinomycosis, always look for granules which are big enough to see with the naked eye. I have on a number of occasions had pus sent to me in suspected cases of actinomycosis and spent hours looking for the organism without being able to definitely arrive at a diagnosis. The laboratory man should see these cases himself. Sometimes the lesion must be incised.

With regard to treatment of trichophytosis, I believe it is perfectly possible to treat and cure these infections of the nails by scraping them out clean, or cutting them out. They cannot be successfully treated with medicine alone. I think the skin specialist would do well to collaborate with the chiropodist. I have submerged sections of infected nails in pure carbolic acid, taken them out, washed off the acid, and then made cultures which grew. In other words, these nails are so filled with growth that it is impossible, from the standpoint of using medicines alone, to eradicate the disease. It must be done mechanically. Almost any of the exfoliative agents may be used to cure the infection in the epithelium.

THE PLACE OF ETHYLENE-OXYGEN ANESTHESIA IN GENERAL SURGERY.*

JAMES THOMAS NIX, M. D.

NEW ORLEANS.

Ethylene anesthesia has been in more or less constant use since March, 1923, when Arno B. Luckhardt first introduced it to the medical profession, yet its true place as a general anesthetic is still unsettled. That is well evidenced by the paper of Edwin Stanton, *Annals of Surgery*, Vol. 86, pages 273-279, August, 1927, and abstracted in the *International Surgical Digest* of October, 1927, pages 199-200. The author sent out a questionnaire to prominent North American surgeons and 640 answers were received. Eighty-five per cent of the 640 surgeons used ether as the standard anesthetic; only ten per cent used ethylene, and the large number of these combined it with ether. On the other hand, some surgeons were extremely enthusiastic after three years' usage. They reported no accidents nor other untoward happenings, although ethylene uncombined was used for all of their operations requiring general anesthesia.

At the Mayo Clinic in the year ending January 1, 1927, 21,260 anesthetics were given. Of these ether was used in 9,228.

In 6,734 ethylene was used in combination with ether or some other anesthetic.

In 2,677 nitrous oxide was used.

In 4,076 ether was used alone.

In 598 ethylene and oxygen were used alone.

In 56 nitrous oxide and oxygen were used alone.

In the year ending January 1, 1928, at the same institution, 21,773 anesthetics

were given. Of these ether was used in 10,007.

In 7,300 ethylene was used in combination with ether or some other anesthetic.

In 7,143 nitrous oxide was used.

In 4,387 ether was used alone.

In 118 ethylene and oxygen were used alone.

In 59 nitrous oxide and oxygen were used alone.

If we accept these statistics as standard for the large hospitals of the United States there are several deductions to be drawn:

1. Ether is the outstanding anesthetic of choice.

2. In 50 per cent or more of all anesthetics ether or some combination with ether is selected.

3. Ethylene in combination with ether, carbon dioxide, local or nitrous oxide is used in 33 per cent of the cases.

4. Nitrous oxide in combination has increased from 12 per cent in 1926 to 19 per cent in 1927.

5. The addition of a gas in anesthetic combination has increased from 44 per cent in 1926 to 54 per cent in 1927.

On the other hand, ethylene and oxygen without other supplements decreased from 598 in 1926 to 118 in 1927. In more striking figures, only .0054 per cent of all the anesthetics at the Mayo Clinic during the year ending January 1, 1928, were ethylene and oxygen uncombined. In most of the smaller hospitals the percentage of ethylene used is far less than this, while in some, as well as most of the hospitals of South America and Europe, ethylene as an anesthetic is not used at all.

The fear of an explosion has kept many surgeons from using ethylene in the past and has kept us constantly on our guard. Although the high humidity and other at-

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*Report of 1,500 cases with this anesthesia uncombined.

mospheric conditions common to New Orleans and other places similarly situated, bordering a great stream of water and near the Gulf, have protected us from the static electricity by dissipating the force without forming an actual spark, nevertheless we exercise the greatest care at all times to prevent the possibility of explosions. We do not adopt the extreme measures as laid out by the Presbyterian Hospital of Chicago, for, in our climate and location, with large, well-ventilated operating rooms and high ceilings, it is unnecessary.

Shortly after its discovery and first experimentation ethylene was admittedly the anesthetic of choice for bad surgical risks, for the anemic, the weak, the septic, the toxic, for goitre cases, lung cases when a local anesthetic could not be used, and I repeat, for those cases labelled "bad surgical risks." It was selected here because the induction was short and easy, the anesthetic pleasant to take, non-irritating to the lungs, causing no shock, no appreciable change to the heart, blood pressure, nor circulation, and even after long anesthesia affecting very little or not at all the metabolic processes of the body, and permitting of a rapid return to consciousness and normalcy. The ethylene sleep did not differ in appearance from normal sleep. If for these reasons it was chosen for bad surgical risks, why should it not be the anesthetic of preference for all surgery, provided the few minor objections could be overcome?

We have now used ethylene and oxygen without supplements for anesthesia in general surgery over 1,500 times. The following table includes cases operated on at Hotel Dieu of New Orleans from October 1, 1925, to April 15, 1928, a total of 1,402.

October 1, 1925, to April 15, 1928:

Brain	3
Amputations	3
Appendectomies without drainage.....	317
Appendectomies with drainage.....	85
Caesarean sections	5
Cholecystectomies	31

Cholecystostomies	19
Colostomies and resections.....	20
Herniae and hydroceles.....	53
Kidney cases	14
Laminectomy	1
Laparotomies (upper abdomen)	26
Laparotomies (pelvic)	103
Lap and plastics.....	167
Mammary cases	22
Plastics (uterus and pelvic floor).....	293
Rectal cases	50
Suprapubic cystostomies	3
Thyroidectomies	31
Thoracic cases	19
Miscellaneous minor operations lacerated wounds, skin grafts, etc.).....	100
Long bones	15
Infections	22
Total	1,402

The cases just tabulated were operated on prior to April 15, 1918. The smooth post-operative course, comparative freedom from nausea, vomiting, gas pains and other distressing complications, the most gratifying anesthetic results, prompted the report in this paper. Anticipating such, the last 100 cases operated on prior to October 15, 1928, were carefully observed and notations made, making a total of 1,502 cases from which conclusions have been drawn.

I shall first make general deductions drawn from three years' experience with ethylene and oxygen, and later attempt more concrete expressions furnished by a careful study of the last 100 cases operated upon.

From a surgeon's viewpoint the primary considerations for a good anesthetic should be:

1. Safety should be the paramount consideration.
 - (a) The immediate safety.
 - (b) Freedom from complications.
2. Ease and rapidity of induction. It should be pleasant to take and produce sleep quietly and quickly.

3. Satisfactory surgical anesthesia should be possible for all operations.
4. The patient should recover promptly and easily from the anesthetic and show little post-anesthetic distress.

SAFETY.

(a) Immediate safety: Let me quote from the article of F. Webb Griffith, in *Anesthesia and Analgesia* (August, 1927), page 202: "The occasional anesthetist is just as dangerous as the occasional operator." With a capable anesthetist ethylene is a very safe anesthetic, otherwise it is very dangerous. We have had no fatalities from the anesthetic, although we have had two respiratory failures which were fairly easily resuscitated, one of them breathing very promptly after about two minutes artificial respiration; the other one, however, was resuscitated only after exhaustive measures for ten minutes.

The concentration of ethylene that we use is rarely more than eighty-five per cent, and usually nearer seventy-five or eighty. Many operations have been completed with as small a percentage as sixty or sixty-five of ethylene, the balance oxygen.

Respiratory embarrassment or failure is usually the result of overdosage, over-concentration, and as a rule can be quickly corrected by the anesthetist. I do not believe it is any more likely to occur with ethylene anesthesia than with ether anesthesia. Dr. Isabella Herb, in *Anesthesia and Analgesia* (December, 1927), page 260, remarks: "Death from ethylene is due to asphyxia and is not due to a central paralysis caused by a poisonous overdose as is the case with ether and chloroform."

(b) Freedom from complications: Later complications of ethylene likely to produce death are practically nil. The drug is rapidly eliminated, and in a very short time, usually a few hours, no apparent traces of the anesthetic remain. Although there is no evidence from other sources to bear us out it is our opinion that existing kidney diseases associated with hyperten-

sion is often aggravated, and an acute nephritis will follow the administration of ethylene.

A most striking case was Mrs. O., operation 8/27/26, umbilical hernia. Blood pressure: systolic 178, diastolic 110; urinalysis negative before operation. After operation on the first day a trace of albumin appeared in the urine, and on each following day 5 per cent, 10 per cent and 18 per cent respectively appeared. The patient recovered after a stormy convalescence. There were several other cases showing a similar though milder reaction.

Likewise, an existing pulmonary infection is sometimes intensified by the anesthetic.

Ethylene sleep is so like the natural sleep that there are few or no visible changes in the patient. The color, expression, breathing and general appearance remain the same. There is no harsh breathing, no excessive secretion of mucus in the respiratory tract, nor profuse perspiration. On awakening there is little or no nausea, and seldom any post-anesthetic discomfort or distress. Rarely is there an indication for measures of relief.

EASE AND RAPIDITY OF INDUCTION.

It is extremely rare, and I might say never do patients complain of the odor of ethylene gas, and some of them really like it. There is no struggling, no stage of excitement, no forcibly holding the patient on the table, and sleep is induced usually in two or three minutes.

SATISFACTORY SURGICAL ANESTHESIA.

The surgical stage follows rapidly that of induction although some cases require ten to twelve minutes before an operation can be carried on. Satisfactory surgical anesthesia can be obtained in nearly every case if the surgeon will co-operate with the anesthetist. It very often happens that relaxation is not sufficient, but by simply waiting a few minutes to permit a greater depth of anesthesia, perfect relaxation will

follow. In most instances it is unnecessary to increase the percentage of ethylene used.

Let me stress what I would label ethylene technic. R. J. Pickard, of San Diego, in *Anesthesia and Analgesia* (February, 1927), wrote: "The difficulties and the inconveniences are rather for the anesthetist and the operator." If a surgeon expects and insists upon the same degree of relaxation that he has with ether, he will probably be disappointed. The surgeon should have confidence in and co-operate to the fullest extent with the anesthetist. He should not expect the same continuous even depth of anesthesia that ether gives, nor is it necessary for all kinds of work, nor for all stages in the same operation. Relaxation almost equal to that of ether can be generally secured, provided the operator is willing to wait for it. Do not crowd the anesthetic nor force the anesthetist to give too great a concentration of the gas. Eighty-five per cent is the maximum that we employ.

Not infrequently during the course of an operation the patient will offer resistance to every surgical procedure. By momentarily stopping the operation and continuing the anesthetic at the same concentration, complete relaxation will soon be established. There were very few of our cases where the operation lasted longer than one-half hour that the patient did not offer resistance at some time or other during the operation, and work had to be suspended until relaxation was again secured. This, however, was only a question of a few seconds. In ethylene anesthesia the border line between wakefulness and sleep is so close that one should rather expect this sub-conscious response of the patient at brief intervals than have no reflex expression whatever to surgical trauma.

Avoid the extreme Trendelenberg position, for this is likely to cause respiratory embarrassment. Do not forcibly or rapidly pack off the bowels, for just such a simple procedure may temporarily cause breathing to stop. In one of our cases, the patient was in a very pronounced Trendelenberg position. At every attempt to pack the bowel off from the pelvic cavity she would stop breathing, and the procedure had to be discontinued. Finally the table was lowered to a more moderate position, the packing was less vigorous, and with little or no difficulty the operation was completed.

PROMPT RECOVERY.

Recovery from the anesthetic is usually very prompt. The patient often awakens before leaving the operating room and is able to talk intelligently to those present. Patients usually vomit once or twice just after reflexes return and before full consciousness is established. There is often no vomiting after this one time.

The usual objections to ethylene anesthesia are smell, explosiveness, freezing and cost. Concerning the odor, we do not admit this as objectionable but find many patients who prefer this to any other anesthetic. The explosiveness is well recognized but can be just as easily met. There is little or no greater danger of explosion here than when you use ether anesthesia or nitrous oxide with ether. Freezing can be well taken care of by the anesthetist. Cost: with a careful and competent anesthetist, the actual gas consumption should not be more than \$4.50 to \$5.00 per hour at the maximum. This of course does not include the wear and tear of the machine, nor the services of the anesthetist. Our ward patients usually pay \$15.00 to \$20.00 for ethylene anesthesia.

Let us now observe more closely the last 100 operations with ethylene and oxygen anesthesia, ending October 15, 1928:

Bed No.	Before Operation				After Operation					Misc.
	Operation	Urine	B. P.	Coag. Time	Urine 1st day 2d 3d	B. P.	Coag. Time	Nausea Vomiting	Gas	
108	Rt. Inguinal Herniotomy	Neg.	120/75	4:00	Neg.	120/75	3:00	None	Sl.	Acute Bronch.
355	Appendectomy	Neg.	115/70	3:00	Neg. Acet. 1 +	115/70	3:00	None	None	Retent. Ur. 3d.
369	Pelvic Laparotomy	Neg.	115/70	3:15	Acet. 2 +	125/70	2:55	None	Sl.	None
360	Pelvic Laparotomy	Neg.	110/75	2:45	Acet. 4 +	125/80	3:00	None	Sl.	None
102	Appendectomy	Neg.	130/90	3:30	Tr. Alb. Casts	133/90	3:00	None	None	Retent. Urine
306	Appendectomy	Neg.	118/80	3:15	Acet. 2 +	125/80	2:45	None	None	None
305	Plastic	Neg.	123/85	2:50	Acet. 2 +	125/85	2:30	None	None	Retent. Urine
360	D. and C.	Tr. Alb.	110/80	2:45	Alb. 1%	115/85	3:00	None	None	None
370	Plastic	Neg.	115/75	3:45	Acet. 2 +	120/75	3:00	None	None	None
145	Appendectomy	Neg.	120/90	3:30	Acet. 3 +	120/90	2:45	None	Sl.	None
390	Plastic and Laparotomy	Tr. Alb.	128/85	3:15	Tr. Alb.	128/85	2:20	Sl.	None	None
106	Appendectomy	Neg.	124/78	3:45	Acet. 1 +	125/78	3:30	Sl.	Sl.	None
110	Appendectomy	Neg.	115/75	3:00	Acet. 1 +	120/70	2:00	None	Sl.	None
314	Empyema	Neg.	145/95	3:30	Neg.	142/100	3:15	V.	Sl.	None
135	Osteotomy	Neg.	140/100	4:00	Neg.	130/100	2:20	None	None	None
124	Hemorrhoidectomy	Neg.	160/100	3:30	Neg.	155/100	3:15	None	None	None
391	Pelvic Laparotomy	Neg.	120/85	3:30	Tr. Alb.	125/85	3:30	None	None	None
214	Plastic	Neg.	130/80	3:45	Acet. 2 +	135/85	3:30	None	None	None
278	Laparotomy and Plastic	Neg.	160/110	3:15	Heavy Tr. Alb. Casts.	145/100	3:30	V. 2	Sl.	None
206	Arthrotomy Semi—L. C.	Neg.	125/95	3:45	Acet. 2 + Acet. 1 +	120/90	3:30	None	None	None
124	Appendectomy	Tr. Alb.	115/90	4:00	Acet. 1 +	110/80	3:30	V. 3	None	None
395	Plastic	Neg.	115/85	3:30	Neg.	125/90	3:30	None	None	None
377	Plastic	Neg.	130/90	3:45	Alb. 1%	135/100	3:30	None	None	None

Bed No.	Before Operation			After Operation						
	Operation	Urine	B. P.	Coag. Time	Urine 1st day 2d 3d	B. P.	Coag. Time	Nausea Vomiting	Gas	Misc.
124	Expl. Lap. Appendectomy	Neg.	120/80	3:15	Neg.	130/80	3:15	None	None	None
133	Herniotomy	Neg.	115/65	3:30	Acet. 1 +	115/70	3:30	None	None	None
140	Appendectomy	Neg.	130/70	3:00	Hy. and fine gran. casts Tr. Acet. and Alb.	135/80	2:45	N. and V.	Much	Acute Neph.
326	Pelvic Laparotomy	Neg.	165/105	2:30	None	135/100	2:45	None	None	None
360	Pelvic Laparotomy	Neg.	125/90	3:00	Acet. 4 +	125/85	3:00	None	None	None
365	Pelvic Laparotomy	Neg.	120/70	6:00	Neg.	125/75	4:30	None	None	None
331	Plastic	Neg.	125/90	2:45	Neg.	120/90	2:30	None	None	None
380	Plastic	Neg.	140/95	4:00	Tr. Alb.	130/90	3:30	None	None	None
368	Pelvic Laparotomy	Neg.	110/85	3:00	Sl. Tr. Sugar	115/85	2:45	Sl.	None	Hiccough
130	Expl. Lap. Up. Abd.	Neg.	125/85	3:15	Sl. Tr. Alb. Tr. Acet.	120/85	3:15	None	Sl.	None
127	Appendectomy	Neg.	130/85	3:00	Neg.	130/80	3:30	None	Sl.	None
357	Pelvic Laparotomy	Neg.	110/80	2:00	Neg.	122/70	2:00	V. 4	None	None
102	Expl. Lap. Appendectomy	Acet. 2	120/95	4:00	Acet. 2 +	118/90	4:00	None	None	None
229	Cholecystectomy	Neg.	130/90	2:45	Acet. 1 +	140/90	2:30	None	Sl.	None
228	Pelvic	Neg.	110/75	3:30	Acet. 1 +	115/75	2:45	V. 1	Sl.	None
381	Pelvic Laparotomy	Neg.	105/55	3:30	Neg.	103/55	3:15	None	Sl.	None
277	Fractured Patella	Neg.	130/90	2:50	Acet. 2 +	140/110	4:10	V. 1	Sl.	None
129	Appendectomy Acute	Neg.	110/75	4:30	Acet. 2 +	130/75	4:15	None	None	None
257	Hysterectomy	Not 1% Alb.	155/110	3:45	Tr. Alb. Tr. Acet.	145/105	4:00	None	Sl.	None
352	Pelvic Laparotomy	Neg.	120/80	3:00	Neg.	125/80	3:00	None	Sl.	None
261	Pelvic Laparotomy	Neg.	130/80	3:15	Acet. 3 + 1 + 1 +	120/80	2:30	None	Sl.	None
145	Expl. Lap. Up. Abd.	Neg.	120/90	3:30	Acet. 1 +	120/90	2:45	None	Sl.	None

135	Expl. Lap. Appendectomy	Neg.	125/80	3:00	Acet. 1 + Neg. Neg.	125/80	2:30	None	Sl.	None
107	Appendectomy	Neg.	125/85	3:10	Acet. 3 +	130/90	2:50	V. 2	Sl.	Acute Bronch.
114	Appendectomy	Neg.	125/85	3:00	Acet. 2 + Tr. Alb.	115/80	3:00	V. 2	Sl.	None
258	Extra-uterine pregnancy	None	75/45	3:45	Tr. Alb.	Too low to record	3:55	Sl. N. 3d.	4 days	Sl. headache
365	Plastic	Trace Acet.	115/68	3:45	Neg.	120/80	3:10	None	None	None
366	Plastic and Laparotomy	Neg.	140/75	2:50	Neg.	144/75	2:40	None	None	None
132	Expl. Up. Abd. Appendectomy	Neg.	120/55	2:50	Acet. 2 + Neg. Neg.	110/75	2:30	None	Sl.	None
133	Hemiotomy	Neg.	105/70	2:40	Acet. 3 + Neg. Neg.	110/74	2:45	None	Sl.	Hematemesis
215	Extra-uterine Pregnancy	Neg.	120/78	2:45	Acet. 1 + Neg. Neg.	120/65	2:45	None	Sl.	None
369	Pelvic Laparotomy	Neg.	120/75	3:30	Neg.	120/55	3:15	Sl. N. No. V.	Sl.	None
278	Pelvic Laparotomy	Neg.	105/78	2:50	Neg.	110/75	3:00	V. 1d.	Sl. 1d.	None
130	Appendectomy	Neg.	115/75	2:30	Acet. 1 + Acet. 1 + Neg.	108/65	2:20	V. twice	Sl. 1d.	None
204	Cholecystectomy	Neg.	140/80	3:45	Occasional casts	98/80	2:50	V. 3 1st. d.	Sl.	None
227	Appendectomy	Neg.	110/75	2:45	Neg.	115/75	2:45	V. 3 1st. d.	Sl.	Retention urine 3d.
303	Pelvic Laparotomy	Neg.	120/70	3:35	Tr. Alb. Acet. 3 +	128/75	3:00	Sl.	Sl.	None
372	Plastic and Laparotomy	Tr. Alb.	135/90	3:15	Alb. 2% Acet. 1 +	135/85	3:00	None	None	None
127	Appendectomy	Neg.	115/75	3:50	Neg.	116/75	3:30	None	None	None
267	Plastic	Neg.	140/88	3:15	Acet. 2 + Tr. Alb.	125/85	3:00	None	None	None
390	Pelvic Laparotomy	Neg.	102/55	3:40	Tr. Alb.	100/55	2:50	Sl.	Much distention	None
210	Appendectomy	Neg.	118/75	3:45	Neg.	120/75	3:10	None	Sl.	None
392B	Plastic	Neg.	140/110	3:00	Neg.	135/110	3:00	None	None	None

Bed No.	Before Operation				After Operation							
	Operation	Urine	B. P.	Coag. Time	1st day	Urine 2d	3d	B. P.	Coag. Time	Nausea Vomiting	Gas	Misc.
206	Plastic and Appendectomy	Neg.	125/90	3:45	Tr. Alb.			130/92	3:15	None	None	None
353	Pelvic Laparotomy	Neg.	145/100	3:45	Acet. 2 + Alb.			135/100	3:30	Sl. 2	Sl.	None
218	Appendectomy	Tr. Alb.	155/120	3:30	Alb. 1 %	Alb. 5.5 %		150/110	3:30	Sl.	Sl.	None
316	Laparotomy and Plastic	Neg.	130/95	3:30	Tr. Alb. Alb.			130/90	3:30	Sl.	Sl.	Retent. Ur. 4d
144	Appendectomy	Neg.	135/95	3:15	Acet. 1 +			130/95	3:00	None	None	None
389	Plastic	Neg.	145/95	3:45	Tr. Alb.			150/100	3:00	None	None	None
145	Appendectomy	Neg.	125/85	3:15	Tr. Alb. Tr. Alb.			130/85	2:40	V. 2	Sl.	None
331	Pelvic Laparotomy	Neg.	128/90	2:45	Tr. Acet.			130/95	3:00	None	Sl.	None
302	D. and C.	Neg.	140/85	3:15	Acet. 3 +			133/80	3:00	Very V. 6	None	None
363B	Pelvic Laparotomy	Neg.	130/88	3:10	Acet. 1 +			125/85	3:00	None	None	Retent. Ur. 2d.
231	Herniotomy	Neg.	135/90	3:10	Tr. Alb. Acet.			140/88	3:00	None	None	None
135	Appendectomy	Neg.	125/90	3:15	Tr. Alb. Tr. Acet.			128/90	3:00	None	Sl.	None
390	Appendectomy and Plastic	Neg.	125/100	3:00		Alb. Acet.		135/100	2:45	None	Sl.	Retent. Ur. 3d.
384	Laparotomy and Plastic	Neg.	130/95	3:00	Neg.			130/95	3:00	None	None	Retent. Urine
310	Hemorrhoidectomy	Neg.	130/95	3:30	Alb. Acet. 1 +			130/95	3:00	None	None	None
385	Expl. Lap. Appendectomy	Neg.	110/85	3:00	Neg.			115/85	3:15	None	None	None
116	Appendectomy	Neg.	120/80	3:00	Acet. 1 +			120/85	3:15	None	Sl.	None
103	Bone Graft	Neg.	125/85	3:15	Neg.			135/85	3:00	None	None	None
139	Pelvic Laparotomy	Neg.	125/85	3:00	Tr. Alb. Acet. 4 +			125/90	3:00	None	None	None
364	Cholecystectomy	Neg.	120/85	2:45	Acet. Tr. Alb. Casts.			105/80	2:30	3d.	3d.	None
274	Pelvic Laparotomy	Neg.	120/90	3:00	Acet. 1 +			115/85	3:00	V. 2	Much	None
368	Thyroidectomy	Neg.	185/140	4:00	Acet. 3 +			160/110	3:00	None	Sl.	None

361-B	Pelvic Laparotomy	Tr. Alb.	175/120	3:15	Tr. Alb. Acet.	170/100	3:00	None	Sl.	None
369	Plastic	Neg.	125/95	4:00	Acet. 4 + Tr. Alb.	120/95	3:30	Ld.	None	None
102	Appendectomy	Neg.	130/90	3:30	Acet. 1 +	130/90	3:00	None	None	None
218	Pelvic Laparotomy	Neg.	130/90	3:30	Tr. Acet. Tr. Sug.	135/90	3:00	None	Sl.	None
317	Pelvic Laparotomy	Neg.	110/85	3:15	Neg.	115/90	3:00	None	Sl.	None
478	Laparotomy and Plastic	Neg.	120/95	4:00	Acet. 3 +	110/95	3:45	None	Sl.	Retent. Ur. 7d
471	Plastic and Hemor.	Neg.	125/90	3:30	Acet.	120/90	4:00	None	None	None
370	Cholecystectomy	Neg.	130/80	3:30	Cast's Tr. Alb.	125/80	3:30	None	Sl.	None
225	Plastic	Neg.	120/90	3:45	Neg.	125/95	4:00	None	Sl.	None
271	Plastic	Alb. Tr.	120/85	5:15	Acet. 2 + Alb.	130/85	4:45	None	Sl.	None
377	Plastic	Neg.	120/85	3:00	Tr. Acet. Tr. Alb.	120/85	2:45	None	Sl.	None
128	Appendectomy	Neg.	125/90	3:00	Acet. 2 +	135/100	2:30	None	Sl.	Acute Bronch.
124	Appendectomy	Neg.	133/85	3:15	Acet. 1 +	130/85	3:00	Sl.	Sl.	None

1. In tabulating these, 102 general anesthetics were counted, for in two operations a small percentage of ether was added, in one instance, to secure greater relaxation of the abdominal muscles, and in the other to act as a cardiac and respiratory stimulant.

2. There was no anesthetic difficulties. All patients were in surgical sleep within ten minutes. With comparative ease the surgical stage was maintained during the entire operation.

3. Slight nausea and vomiting were generally present immediately after the discontinuance of the anesthetic. Occasionally this lasted several hours. Twenty-seven per cent showed some nausea, although only 2 per cent were sufficiently severe to call for medical aid.

4. One of the series became hysterical after returning from the operating room, and this probably was due to a severe misfortune which had very recently befallen her home, just two days previous.

5. Acetone appeared in the urine of 57 per cent of cases on the first day post-operative. It usually increased on the second and third days, quickly disappearing after giving the patient nourishment.

6. Gas pains and distention caused little discomfort and called for no measures of relief except a hot water bag to the abdomen and rectal tube in all but 6 per cent of the cases. In 55 per cent, however, these were manifest to a very slight degree.

7. Post-operative albuminuria, 1 per cent above, occurred in four cases. In each there was definite evidence of existing or previous kidney disease. Mrs. H., blood pressure 178/110 showed 5 per cent albumin on the fourth day. Mrs. C., acute nephritis three years previous, postoperative albumin 1 per cent, red blood cells and a few casts. The other two cases also gave a history of previous kidney disease. Pre-

operative urinalyses in all cases were negative.

8. Coagulation time was definitely shortened in 70 per cent and lengthened in 16 per cent, remaining stationary in 14 per cent. In no instance was the increase sufficient to cause alarm.

9. Vomiting of blood occurred in one case; about one tablespoonful bright red blood was vomited ten hours after a simple herniotomy in a child twelve years old.

10. Blood pressure: It usually rose slightly during the operation but at the conclusion showed little change over the pre-operative blood pressure. In 45 per cent there was a rise of 20 or less. In 20 per cent it remained unchanged. There was very little change in the diastolic blood pressure.

11. Two of our cases were convalescing from influenza and in each instance the cough became worse, the expectoration more profuse and purulent.

Ethylene has no effect on healthy lungs but might easily cause an acute flare up in lungs showing existing mild infection.

12. One of the patients in this series died; that a male, 57 years old, having a gangrenous appendix. He was a very poor surgical risk and only operated on as an emergency. The others made uneventful recoveries.

The thermocautery is used by us in severing an appendix and searing the stump, but only after many precautions are taken. This is the only time the cautery is permitted in our operations. We had one near explosion in 1925 when ethylene vapor beneath the sheets on the operating table ignited. The tanks had previously been turned off, the patient's lungs washed with oxygen, and no ill effects resulted.

What we have said detrimental to ethylene anesthesia applies in great measure to ether and other anesthetics. Many of the favorable criteria pertains to ethylene alone.

In drafting a conclusion let me begin with the opinion of Gwathney: "Ethylene is steadily gaining ground. So far we have not found a gas or anesthesia to replace it." Also Dean Lewis, in *Practice of Surgery* (1928), Vol. 1, Chapter 3, Anesthesia, page 23: "Ethylene anesthesia produces muscular relaxation almost equal to ether."

CONCLUSIONS.

In our opinion:

1. In the hands of an expert ethylene is as safe as ether.
2. It is the anesthetic of choice for general surgery, good risks as well as bad ones.
3. The normal body functions are less disturbed than with other anesthetics. During the operation and afterwards a condition approaching normalcy prevails.
4. The cost, though above ether, is by no means prohibitive.
5. There are times when a local, spinal, local with ethylene, or rectal anesthesia are to be preferred.
6. Existing pulmonary infection or kidney pathology is sometimes slightly aggravated by the administration of ethylene.
7. Comparing it with the other general anesthetics, the minor objections to ethylene are far outweighed by its immense advantages. The many trying hours, and sometimes days, of gas pains, irritative cough, occasional conjunctivitis, nausea and vomiting are now forgotten, and the anesthetic course is best described in the two questions so often asked by our patients:

At the end of twenty-four hours, "Doctor, what can I eat?" and at the end of forty-eight hours, "When can I go home?"

Note—I am indebted to Miss Agnes Grillet, R.N., senior anesthetist at Hotel Dieu, for giving and supervising the administration of these anesthetics, to Dr. J. LaNasa, for carefully compiling the

records of the last 100 cases recorded, and to the nursing staff in the operating room at Hotel Dieu for their assistance in preparing this paper.

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DISCUSSION.

Dr. Ansel M. Caine (New Orleans): I read today with a great deal of pleasure Dr. Nix's most excellent paper. The work of compiling these cases and the records that he has are most complete.

In general I agree with what he says. In order to have the relaxation that is essential for abdominal operations you certainly have to have the 100 per cent co-operation of the surgeon, as well as his forbearance, and he has to realize the importance of this. Ethylene does not give a perfect relaxation like ether. The surgeon who operates under local can operate better under ethylene than one who is used to ether, as he is more gentle. The surgeon who is used to ether and perfect relaxation has a

pretty hard time getting along with ethylene unless he is absolutely determined to get along with it and co-operates with the anesthetist. Wait until he tells you to start before making your incision; if you start before you are pretty sure to be displeased with the anesthetic. It takes time to relax the patient and when he starts groaning it takes time to make him stop groaning—you can use all the drugs you know and yet the anesthesia is not complete in a minute.

One thing Dr. Nix did not mention is that we have been using recently carbon dioxide, which helps to deepen the anesthesia. The addition of carbon dioxide, 6 to 8 to 10 per cent, increases the respiration; where he has been running about 500 c.c. tidal you can run him up to 1000 c.c., and when the air vesicles are thoroughly filled the absorption is greater and the patient gets under the anesthetic quicker. It assists in deepening the anesthesia where the patient is breathing shallow and groaning; they are only breathing about 300 to 200 c.c., and it is largely tracheal breathing; instead of breathing fifteen times a minute they sometimes breathe about six times and everybody is getting nervous for the patient's safety. The addition of carbon dioxide increases respiration promptly and the anesthesia is deepened. I find with the majority of surgeons it is required to add some ether rather frequently in laparotomy although some are perfectly willing to do without perfect relaxation. Occasionally we get perfect relaxation, but it is not constant by any means.

As to the after effects we get, as Dr. Nix says, nearly every patient empties his stomach during recovery. There are exceptions, however, and sometimes they are nauseated for quite a little while afterwards.

Regarding the explosiveness of ethylene, most of the accidents reported are static except those, of course, that are preventable. Here, where it does not get so cold, and is damp, we have no static except on cold, dry days, and they are very, very few, consequently, with the proper precaution, the danger of explosion is negligible.

I have enjoyed listening to, as well as reading, this paper and thank Dr. Nix for his contribution.

Dr. A. C. King (New Orleans): This subject is one of interest to every surgeon and those of us who are growing gray-headed can remember the times we had with chloroform and our experiences in reaching around for the safest anesthetic and the one offering the most comfort to our patients. A most important consideration that should not be overlooked, I think, is to

know the action of the chosen anesthetic on the body.

I ran across a most interesting, instructive article by Dr. John D. Brumbaugh, giving his deductions from an experimental study on the effects of ethylene-oxygen anesthesia on the normal human being. The number of experiments (15) is not great, but sufficient to give us an insight into the effects of this anesthetic on a normal person. I quote it verbatim:

"Subjects.—Fifteen men, eight of whom were graduate physicians, officers of the medical corps, and seven of whom were enlisted men of the medical department, volunteered to be anesthetized for this study. The ages ranged between 21 and 37 years, and all passed a careful physical examination.

"Method.—The anesthesia was given in the morning, without breakfast and without any pre-anesthetic medication." (I would ask Dr. Nix to mention, in closing, what he uses for a pre-anesthetic sedative.) "Before the anesthesia was begun the blood pressure, pulse and respirations were recorded, a specimen of urine was obtained, the hemoglobin was determined, and blood was drawn from the median vein for the determination of the coagulation time, blood sugar, blood urea, carbon dioxide combining power, and the icterus index. The subjects were anesthetized for one hour, at as nearly a constant depth of surgical anesthesia as possible; the induction was started with a mixture of approximately 85 parts of ethylene and 15 parts of oxygen," (I wish to know whether Dr. Nix used ethylene and oxygen in the same proportion?) "and maintained as near this concentration as the patient would permit. Two brands of ethylene gas, both accepted by the Council on Pharmacy and Chemistry of the American Medical Association, were used. During the anesthesia, the pulse, blood pressure and respirations were recorded at five minute intervals. At the termination of anesthesia, the hemoglobin was again determined and another specimen of blood was drawn from the median vein for the determinations mentioned. Twenty-four hours after the anesthesia, the subjects reported without breakfast," (this is very important) "the hemoglobin was determined, a specimen of urine obtained and a specimen of blood again withdrawn from the median vein. The recovery time and all post-anesthetic morbidity were carefully recorded."

CONCLUSIONS.

"From the study of fifteen normal subjects under ethylene-oxygen anesthesia for one hour, without any pre-anesthetic medication, and without operative or other complicating factors, we

feel justified in drawing the following conclusions:

"1. The induction sensation of a subject undergoing ethylene-oxygen anesthesia is pleasant; the odor of the gas is not a disturbing factor either during induction or following recovery.

"2. There is no change in the hemoglobin, as shown by the Newcomer hemoglobinometer, either immediately following, or twenty-four hours after anesthesia.

"3. There is no change in the icterus index, either immediately following twenty-four hours after anesthesia, and there is no appreciable destruction of red blood cells, with the resultant liberation and destruction of hemoglobin, and no appreciable derangement of the biliary system, following this anesthesia.

"4. There is a marked increase in the blood sugar immediately following anesthesia, the average being 45.3 per cent with a fall to practically the pre-anesthetic level in the subsequent twenty-four hours.

"5. There is no change in the blood urea immediately following anesthesia, but there is a definite increase in the blood urea twenty-four hours after the anesthesia, which in this series averaged 18.7 per cent.

"6. There is a moderate decrease in the carbon dioxide combining power of the blood which is only temporary, and returns to the pre-anesthetic level within twenty-four hours. The average decrease in this series was 8.35 per cent over the pre-anesthetic level.

"7. There is no change in the coagulation time of the blood, either immediately following or twenty-four hours after this anesthesia.

"8. There is no change in the character of the blood clot either immediately after or twenty-four hours following this anesthesia.

"9. There are no urinary changes following this anesthesia.

"10. There is an increase in the systolic blood pressure, which in this series amounted to 14.1 per cent, and a slight increase in the diastolic blood pressure, which in this series amounted to 3.5 per cent, and an appreciable increase in the pulse pressure, which in this series averaged 31.4 per cent during this anesthesia.

"11. There is no appreciable increase in the pulse rate during this anesthesia.

"12. The postanesthesia morbidity in this series was much greater than is usually encoun-

tered in patients undergoing operative procedures.”

Dr. J. A. Danna (New Orleans): I agree with most of the nice things Dr. Nix has said about ethylene, but I am afraid the impression would be given, from what has been said so far, that ethylene is not dangerous. I believe the reason that the Mayo Clinic does not use as large a proportion of ethylene or as freely as they did is because they have found it dangerous. They discovered that under prolonged ethylene anesthesia their patients did not do as well as under ether anesthesia. This thing struck home to me at just about the same time that they came to this conclusion. I had been having deaths following prolonged anesthesia with ethylene that I could not understand and it was not until Dr. Sistrunk of the Mayo Clinic called my attention to his own feeling about the matter that I came home and stopped using ethylene whenever anesthesia was required for over three-fourths of an hour or an hour. I am sure that I lost four or five patients because I used ethylene. Has anyone here had a pure, clear-cut ethylene anesthesia death? (For answer see Dr. Jerome Landry's discussion.) I had one, and had it before I knew that it was possible, in giving ethylene, to get a sample or package of ethylene that might contain carbon monoxide. My patient died of carbon monoxide poisoning, without my knowing it, right under my eyes. This happened over two years ago.

Dr. Nix says his patients relax very easily. My patients do not relax very easily with ethylene; unless they receive a good-sized dose of morphine beforehand, it is very hard to get them strictly muscularly relaxed with ethylene.

One of the ways in which patients do badly under ethylene, especially in warm weather, is that they get post-operative high temperature which looks very much like heat-stroke. I had quite a number of these cases until I realized that ethylene was the basic cause.

Dr. Jerome E. Landry (New Orleans): About ninety per cent of my charity work is done under local anesthesia, while in a little over ninety per cent of my private work I use ethylene. I have had three ethylene deaths. I was called in to assist one of my confreres who was trying to do a herniotomy under local and had been working for an hour upon it. He found that he could not reduce the contents of the hernial sac and I suggested ethylene. So Miss Grillette, our anesthetist, started to give the ethylene anesthetic: about three minutes after the patient was dead. The two other cases were at Charity Hospital; five minutes after the ethylene gas anesthetic was started they were dead. However, I still

believe that ethylene gas is the safest of all anesthetics used today.

Dr. E. L. King (New Orleans): I have found ethylene very useful in obstetrical work, particularly in normal deliveries or low forceps deliveries, and do not hesitate to give it in those cases for a matter of two or three or four hours, intermittently of course, only administering it during uterine contractions and not giving it in between. It has also proved useful in other obstetrical operations, those that we do not perform under local, such as the high classical Cæsarian or the low operation. I have had similar gratifying experiences with a few cases of ectopic pregnancy, but I will agree with others that we do not always get the absolute relaxation that is desirable. However, in most cases of ectopic pregnancy this is not as essential as in upper abdominal work.

The objection has been raised that ethylene predisposes to post-partal hemorrhage. This has not been my experience, for I have noticed no increased or excessive bleeding following its use.

Ethylene does not give sufficient relaxation for the average case of version. Really we need ether, or, as Dr. Lewis contends, it is best done under chloroform. Potter of Buffalo, one of our most expert obstetricians, also claims that there is nothing like chloroform in these cases and that not even ether gives the relaxation necessary for version. So with ethylene, naturally, we would find that the relaxation would hardly be sufficient.

Dr. H. L. Kearney (New Orleans): I just want to say a few words about the use of ethylene from the standpoint of the throat man, that is, the use of this anesthetic agent for tonsillectomy and adenoidectomy, for instance.

In throat work the production of anesthesia is difficult because the mouth is open and the patient does not get gas in the lung. Many tonsillectomies have been done under gas anesthesia (ethylene) by the use of a tube introduced into the lower part of the pharynx, but anesthetization is difficult because, as aforementioned, the patient does not get a sufficient quantity of the anesthetic into the lung for relaxation on account of the open mouth.

Dr. Baker has given for me several ethylene anesthetics for tonsillectomies in which we used the intratracheal tube, first anesthetizing the patient with ether, then switching to the tube and continuing the operation under ethylene. This is very much more satisfactory than the other method, using only ethylene, for then the patient is never sufficiently relaxed. Relaxation

with ethylene, in any way it is given, to me is not as complete as with ether; the patient's tongue is apt to be swollen and in the way, and the relaxation is never as satisfactory as with ether.

For the intratracheal tube we use a large catheter; through the tube we have cut into the sides, holes corresponding to Jackson bronchoscope. This gives the gas a chance to escape and facilitates the anesthetic.

For many cases I think ethylene is ideal; in throat work it might be particularly indicated in those cases where there is some suspicion about the kidney function. We have used it in these cases, first obtaining relaxation with ether, then introducing the intratracheal tube and continuing with ethylene.

Dr. Urban Maes (New Orleans): The discussion of this paper has, it seems to be, put the surgeons somewhat on the defensive. I am quite ready to agree with the anesthetists that the surgeons should co-operate with them, but I would suggest, in return, that co-operation on the part of the anesthetists is equally desirable. When I am operating and the anesthetist tells me the patient is ready for me to proceed, I take his word for it, and if the patient strains, I feel that he has quite as much to do with it as I have.

My own experience is that ethylene is not the ideal anesthetic for upper abdominal work. In selected cases, especially where other types of anesthesia are contra-indicated, it has a definite field, but generally its advantages are more than overbalanced by the imperfect relaxation and the consequent additional manipulations necessary to keep the intestines in place. The more the viscera are handled, the more trauma is caused, and the patient's condition is worse in the end than it would have been under ether anesthesia. Many times I have been very much embarrassed, at the close of an operation, when I was not even handling the viscera, because the patient forced out his intestines and I could not put in my sutures, and for this reason, if for no other, I am opposed to the routine use of ethylene for upper abdominal surgery.

Dr. H. W. Kostmayer (New Orleans): I certainly agree with Dr. Maes about the trauma to the tissues more than counterbalancing any good derived from the use of ethylene as an anesthetic when working in the upper abdomen. I think this is even more true of pelvic work than it is of work in the upper abdomen. My personal experience with ethylene is that it costs more, there is the ever present possibility of blowing out the patient's trachea, it makes the operating room smell like a sugar house and does not give sufficient relaxation. If I learned tomorrow that its manufacture had been stopped, I would not be disappointed.

Dr. Jas. T. Nix (closing): I thank Dr. Caine for his kind discussion, also the other discussors of my paper. I had anticipated a difference of opinions and knew, more or less, what the arguments would be.

The very latest thing off the press I can quote is by Dean Lewis, who says: "Ethylene gives you almost the same degree of relaxation that you get with ether." I started the use of ethylene could give it.

Concerning the pre-anesthetic drug, I give 1/6 gr. of morphine and 1/150 gr. of atropine as a rule, varying the amount according to the condition of the patient.

With reference to Dr. Danna's remarks, I do not think that ethylene has fallen into disfavor at the Mayo Clinics; I should say rather that the reverse obtained, for last year they gave 7000 ethylene and ether anesthetics and in 1926 the number given was 6000. It would seem therefore that Dr. Danna is wrong. Regarding the explosiveness of this anesthetic agent, the above figures certainly indicate that they are pretty well able to handle the situation from this viewpoint.

Regarding the relaxation, there is no question about it; in some cases we do have to use ether. The percentage of ether we used was very small and it was only given during that part of the operation where there is straining. We very seldom had to resort to this measure.

I think that the time factor plays an important part; if the patient is on the operating table a long time it is usually more dangerous than in a short operation. I have never seen any deaths from ethylene anesthesia. As stated in my paper, I have had two respiratory failures, one very evanescent, the other lasted ten minutes. In one case I had two years ago, the patient had undergone a very serious operation. He did not die at that time, but five days later. Dr. Jamison, who was called in consultation called it alkalosis; he did not call it an anesthetic death then, therefore I am not counting it as an anesthetic death at this time. I am sure we have given nearly 2000 ethylene anesthetics up to the present. Two days ago a patient who was given anesthesia caused us some embarrassment on the table. After hypodermic medication, however, his breathing was better, and during the operation he was further stimulated. The operation (upper abdomen) lasted three-quarters of an hour and was completed successfully. One-half ounce of ether was given during the course of operation; probably 20 minutes after the operation was begun.

Again I thank you, gentlemen, for the discussions, pro and con.

THE DISEASED GALL BLADDER.*

CARROLL W. ALLEN, M. D.,

NEW ORLEANS.

The gall bladder occupies much the same position in the medical thought of today as that occupied by the appendix twenty-five years ago. This stormy petrel of the abdominal cavity was often the subject of more than half of the discussions at our medical meetings of that time. The Murphy drip and Ochsner method of treatment had their origin at that time, as we slowly emerged from a period of doubt and obscurity to one of certainty and assurance, when today we can almost lay down dogmatic rules for the handling of their little trouble-maker.

We are still far from accurate in our diagnosis of diseases of the upper abdomen and the best method of handling the pathology of these parts is still the subject of much debate and divergent opinions.

As the results of investigation in the experimental, pathological, chemical and radiological laboratories in collaboration with clinical observation our knowledge of the physiology and pathology of the gall bladder is slowly evolving out of this chaos until now we are individually, if not collectively, able to formulate some definite rules for our guidance in dealing with disease if this organ based on well established data.

Certain physiological facts regarding the gall bladder and biliary system would seem now as the result of repeated observation to be fairly well recognized.

1. It is a functioning and not a vestigial organ.

2. During the intervals of digestion it concentrates bile by absorption of the watery element, which concentrate is again diluted and delivered into the intestine during the next period of digestion.

3. The nervous control of the gall bladder and biliary system is the same as in all reservoirs of the body. A relaxation of the sphincters is automatically followed by a contraction of the musculature of the reservoir, and the reverse holds true; a contraction of the sphincter at the ampulla of Vater is followed by a relaxation of dilatation of the gall bladder. The rectum and urinary bladder are two other illustrations of this universal rule.

4. Following the removal of the gall bladder nature again prepares a reservoir for the accumulation of bile by a dilatation of the common duct.

Considerable pathological data have gradually been accumulated and can be stated with a fair degree of certainty.

1. The gall bladder is rarely ever a primary focus of infection. It is fairly well agreed that the infection travels by the portal vein to the liver, and from here is conveyed to the gall bladder, most probably by the lymphatics. It is common after typhoid and I am confident that influenza is a cause of infection probably through the blood. Dental and oral foci are also stated as being capable of producing gall bladder infection.

2. The gall bladder once infected may be the source for continued reinfection of the liver, and a chronic hepatitis be established.

3. The relationship between an infected gall bladder and glycosuria is now thoroughly proven by the infection travelling along the duct of Wirsung from the ampulla of Vater. This infection in the pancreas, when once well established, may lead to a chronic fibrosis of the entire organ with a destruction of the Islands of Langerhans resulting in a true diabetes. Dr. Allan Eustis, with whom I have been working on this subject for some years, is firmly of the opinion that the diseased gall bladder is a potential source of diabetes.

*Read before St. Tammany Parish Medical Society, Slidell, November 14, 1928.

4. The infection may be conveyed from the gall bladder by the circulation and result in an arthritis or myocarditis (brown atrophy of the heart muscle)—or an arteriosclerosis.

Dr. Eustis in a careful analysis of 100 cases of myocardial insufficiency shows that the chronic gall bladder was responsible in 38 per cent.

5. Imperfect liver metabolism brought about by biliary infection may result in the absorption of more or less toxic substances resulting in a variety of disturbances.

A major advance in the study of gall bladder disease was begun with the introduction of methods of visualizing the gall bladder as developed by Graham, Cole, and others. This method is not only of value in recognizing the diseased gall bladder by its failure to contract and properly empty when viewed in the cholecystogram, but is also of tremendous clinical importance in evaluating the results obtained by the various methods of treatment, namely, medical alone, or combined with transduodenal lavage and simple surgical drainage.

The normal gall bladder should take up the dye readily in from eight to twelve hours and show as a clearly outlined figure in the roentgenogram, and contracts practically to the point of disappearance following a fatty meal. The failure of the gall bladder to visualize is evidence of a marked degree of disease of its walls and vessels which renders it incapable of taking up the dye. The pathological gall bladder, when visualized, may either fail to contract or contract imperfectly when viewed by the cholecystogram indicating its inability to properly empty itself which is taken as a guide of its degree of pathology.

As a result of this means of observation we are able to determine the benefits resulting from the various methods of drainage.

In a small number of cases complete relief of clinical symptoms is accomplished over considerable periods of time and lesser relief in a large number, with negative results in the large majority.

As a result of these studies with the cholecystogram it is shown that but a very limited amount of benefit of transient duration is obtained by any method of drainage and forces us to the conclusion that it is futile to expect the diseased gall bladder to regain its normal function by these measures which may only result in serious organic change which endangers the life of these patients and that these means of treatment should be reserved for that class of patients where the radical method of treatment is too hazardous and palliation is all that should be attempted.

In my own patients where surgical drainage has been all that was possible at the time of operation, nearly all have returned in from one to two years for cholecystectomy.

There is at present much difference of opinion as to the best method of administering the dye—some advocates of the intravenous route insist that this is the only dependable means of administration.

At the Baptist Hospital we almost invariably use the *per orem* method of administration, and in my own cases, I have kept a close check on results and have rarely found a single instance where the operative findings were at all at variance with the cholecystogram.

With these physiological, pathological and clinical data we must conclude that the diseased gall bladder is better "out" than "in".

The same rules which guide us in the handling of the acute appendix can not be accepted as criteria in the diseased gall bladder.

Unlike the acute appendix, the acute gall bladder is better left alone and rarely ever does it present an emergency at all com-

parable to the acute appendix and unless attended by very serious symptoms, or gangrene is feared, it is better to palliate the condition and operate in ten days or two weeks when its removal may be quite easily undertaken. If operated in the acute stage, drainage is all that should be attempted and is often quite difficult and hazardous and is frequently attended with infection of the wound and slow healing. These cases if allowed to "cool off" may often have their gall bladders safely and easily removed unless complicating conditions forbid.

I invariably do a cholecystectomy in all uncomplicated cases, and reserve drainage for all cases of secondary pancreatitis, chronic hepatitis, jaundice, cases weakened by long continued sepsis. In cases of stone in the common duct associated with jaundice the gall bladder should always be drained and often the common duct too after the stone is removed, occasionally one finds a case of stone in the common duct with the duct embedded in a mass of adhesions, matting it to all surrounding parts, the patients jaundiced and septic. Any attempt at digging out the stone under these conditions is far too hazardous and should not be attempted, it is far better in such cases to drain the gall bladder and await the subsidence of the pathology, and go in a second time.

Prolonged jaundice greatly increases the risk of operation as these cases frequently bleed freely from all traumatized surfaces and are prone to develop liver and kidney complications.

While the clotting time of the blood is always a good guide in these cases, it is not always dependable. Blood transfusion as a pre-operative procedure is often very helpful, or the intravenous injection of 5 to 10 c. c. of a 10 per cent calcium chloride solution may be used to advantage.

We have during recent years heard much of cholecysto-enterostomy and similar procedures. I have not, however, been able to consider this procedure with any favor and if we accept the view of the majority of surgeons that the diseased gall bladder should be removed there is then no place for cholecysto-enterostomy except as a means of side-tracking the biliary stream in cases of loss or occlusion of the common duct.

In the chronic gall bladder case the appendix is nearly always involved and I have found this so frequently that I consider the chronic appendix as one of the causes of gall bladder disease and invariably remove it at the time of the cholecystectomy.

In a thorough study of the pathology of the upper abdomen the stomach should be carefully gone over. In the typical gall bladder case hypochlorhydria is the more common finding while with the simple chronic appendix hyperchlorhydria is usually found.

The appearance of the gall bladder at operation is often taken as a guide to its pathology and in the hands of the experienced this may be reliable particularly so if the gall bladder empties freely under moderate compression. We, however, occasionally meet a smooth thin-walled gall bladder where the duct is sufficiently diseased to produce interference in its evacuation. The rule should be when in doubt remove it, particularly so if the clinical symptoms would seem to indicate disturbed function.

There are few fields in surgery which call for more judgment and experience than the complicated gall bladder. Our chief guide should always be the conservation of life and to accomplish this end in the complicated case one must often be content with incomplete work and be willing to leave behind some pathology to be relieved at a later and more favorable time.

PERSONAL EXPERIENCES IN
ABDOMINAL SURGERY
EMERGENCIES.*

ISIDORE COHN, M. D.,†

NEW ORLEANS.

Many are inclined to think only of traumatic lesions when the subject "Surgical Emergencies" is mentioned.

It is proposed here to discuss abdominal emergencies under four headings.

- (1) Spontaneous.
- (2) Traumatic.
- (3) Operative.
- (4) Post-operative.

In class (1), the so-called spontaneous surgical emergencies, will briefly discuss acute appendicitis, perforating gastric and duodenal ulcers, gastric hemorrhage, due to intrinsic and extrinsic causes; hemorrhage, whether subcutaneous or from one of the mucous membranes, particularly those associated with splenomegaly and acute gangrenous cholecystitis.

In class (2), traumatic, rupture of solid viscera, particularly the spleen, and hemorrhage.

In class (3), operative emergencies, or such conditions arising from unintentional injury to the common duct during a cholecystectomy, injury of the intestines during an abdominal incision, hemorrhage during abdominal operations, and sliding hernias.

In class (4), post-operative, intestinal obstruction, alkalosis, post-operative hemorrhage, and post-operative rupture of the abdominal wall.

This paper was prompted by some of the following experiences.

A young physician was lamenting the fact that a patient could not be operated on by the house officer and said: "If I had a pain in my belly I would want the first surgeon around to operate on me." An older surgeon replied: "I would rather wait a little until an experienced man could arrive. His judgment would in most instances justify the delay."

Another inexperienced doctor operating on a patient found a perforating gastric ulcer. The doctor removed the appendix, put in a drain and remarked: "If I knew how to do one of those things," meaning a gastroenterostomy, "I would do it."

It should be remarked, parenthetically, that this patient recovered.

A great surgeon speaking to a hopeful young man, said: "It is fortunate that you have not a large surgical practice yet because you could not handle it." Little did the young man realize the truth implied, "what would you do with it?"

That is precisely the question under discussion—what would you do with it.

All abdominal emergencies call for experience, knowledge of literature, conviction, and prompt action.

When one considers the subject of abdominal surgical emergencies it is necessary to mention first that subject about which most has been written—appendicitis.

Zachary Cope has only recently said: "If the mortality from appendicitis is to be reduced almost to the vanishing point it is essential that the early signs and symptoms of the condition should be appreciated."

It is interesting to contrast that statement with the expression of Murat Willis (1926): "The mortality from appendicitis has increased 31 per cent during a period from 1905 to 1922. In 1921 the mortality was 14.4 per 100,000 population. There are about 16,000 deaths annually in the United States from appendicitis."

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"The annual toll taken by appendicitis almost equals the combined total of intestinal obstruction, gall stones, and gastric and duodenal ulcers. Before the age of 45 more persons die annually from appendicitis than cancer."

The contrast between the Utopian idea of Cope and the statistical findings of Willis must make one realize that the ideal status of knowledge and skill has not been reached.

Probably one reason is that given by Hendon in the following quotation: "The only hand that paints a perfect picture of pathology is the hand of death, and the only critic that applauds the pathological art is the grave."

One reason why so many are lost is that some wait for the perfect picture. Some depend too largely on the blood count. It cannot be emphasized too much that delay may mean death, and that the complete clinical picture is not necessary.

Proper interpretation of signs and symptoms will lead to better results.

We believe that too much stress is placed on operation and not enough on diagnosis. There are many skillful operators who are not equally skilled in diagnosis.

One way to reduce mortality is to make early accurate diagnosis and operate at once. To compromise on delay, because of family prejudice to operation, may mean your reputation and the patient's death.

One cannot expect each case to present the classic picture.

Some of the worst cases are those where the patient walks into the office. It may not be difficult for the surgeon to diagnose the condition, but the fact that the patient has a sense of well being and has considered his illness a trivial matter makes it difficult to convince him of the urgency of an operative procedure.

Such cases may be illustrated by the following experiences:

Case 1. Mr. L. L. (1914), walked into the office and gave the history that he had had abdominal pain for about 48 hours. During the past few hours his pain had been relieved.

Examination revealed marked rigidity on the right side and a large mass. Palpation did not cause the patient pain.

Immediate operation revealed a ruptured gangrenous appendix from which the patient eventually succumbed.

Case 2. Mr. J. L., age 40 (1927). Patient complained of epigastric distress; as the patient described it, "same feeling as it is when stomach is out of order."

During the preceding day he had taken a purgative, since which time his pain increased. No nausea nor vomiting had been associated with his pain. His bowels had acted. Temperature, 99°.

Abdominal examination revealed no tenderness above the umbilicus. Slight increased defensive attitude of the muscles on the right side below the umbilicus. The leukocyte count was 13,750 with a differential count of 68 per cent neutrophils, 27 per cent large mononucleated, and 5 per cent small mononucleated.

This patient was advised that he had an acute appendicitis and that he should be operated on. He demurred; in fact, stated that he was not sick enough to be operated on. After 48 hours he consented to go to the hospital.

At operation we found a gangrenous appendix. The convalescence was stormy as it was accompanied by a severe bronchopneumonia.

Case 3. Mr. G. L. (1927), walked into office complaining of pain which had persisted for 24 hours. His bowels had acted. He had been able to work and at no time had his appetite been impaired.

On physical examination there was pain on pressure on the right side of the abdomen, slight increased resistance of the right rectus muscle, and slight elevation of temperature.

He was operated on in the afternoon of the same day and a gangrenous appendix was found. Recovery was uneventful.

Case 4. Miss M. S. (1921), complained of pain for four days, nausea, but not vomiting. Temperature 99°, pulse 90. The leukocyte count was 12,000, of which 83 per cent were neutrophils.

The patient refused an immediate operation. Against advice she went to the hospital in an automobile.

At operation, which was performed immediately after admission, we found a gangrenous appendix and a large quantity of cloudy fluid in the abdominal cavity. Her convalescence was uneventful.

Case 5. Mrs. B. P. (1927), was examined because of an epigastric pain, for which she had been under treatment by another physician for several months. She had had heaviness after eating, not associated with eructations. Temperature $99\frac{3}{5}^{\circ}$. Blood count showed 10,000 leukocytes, 80 per cent of which were neutrophils.

Abdominal examination revealed right rectus rigidity and hyperesthesia of the right side below umbilicus. Pressure over the umbilicus was accompanied by pain in the right lower quadrant of the abdomen.

Operation in this case was not considered urgent. The patient was operated on the following morning. At this time we found a large quantity of free peritoneal fluid. The appendix was thick and its vessels were markedly injected.

The fact that a patient is examined in the office, and even feels well enough to attend to his work should not deter the surgeon from feeling, if the clinical manifestations justify it, that an actual emergency exists, and the patient should have the possible danger which he is facing clearly outlined to him, thus placing the entire responsibility on him.

Frequently the history may be misleading, particularly is that true in cases where the patient insists that he has committed a dietary indiscretion. Diarrhea associated with abdominal pain does not necessarily mean that appendicitis is not the cause.

This can be illustrated by the following case:

Case 1. Mr. T. B. (1927,) complained of pain in the abdomen for about 24 hours. During the preceding night he had drunk a large quantity of home-made wine. His pain was not constant and he had had frequent stools. His temperature when first seen was normal, pulse 78. Two hours later the temperature was 100° , pulse 90.

The doctor who first saw him did not consider it of sufficient importance to make a blood count. The patient was seen two hours later by the author. The blood count was 18,200 leukocytes, 78 per cent neutrophils. There was some tenderness in the lower quadrant.

At operation, five hours later, we found an appendix covered by a fibrinous exudate. The lumen was constricted about one inch from the tip.

When the diagnosis is questionable, delay for a few hours during which time the patient can be kept under observation and repeated blood counts made is justifiable.

Case 1. Mr. S. L., age 18 years (1926). I was called to see him the night of September 27th, 1926. He had had pain in the abdomen during the entire day; the pain was diffuse, later localizing in the upper segment of the abdomen. There was no urinary frequency. He vomited once about 7 p. m. His temperature was $97\frac{4}{5}^{\circ}$. He was apparently perfectly comfortable. There was abdominal tenderness, but no rigidity on either side of the abdomen. The only area where I found tenderness at all was the right hypochondrium. His pulse was 72. Blood count showed 14,700 leukocytes, with 80 per cent neutrophils. Prior to getting the report I advised the mother that I could not definitely make a diagnosis of appendicitis (at that time), but in view of the fact that he had had previous similar attacks I felt that we should make further observations, and if within 12 hours he still had pain we would advise operation.

The following morning it was reported that he had had a comfortable night, no nausea nor vomiting, the bowels moved by enema, the temperature was normal and his pulse was 84. I found slight tenderness in the right iliac fossa. I advised operation.

We found an acute inflamed appendix which was stuffed and its walls were tense and friable. In places discoloration of the walls suggested beginning gangrene.

Relief from pain is sometimes taken by the patient to indicate that he is improving where as in reality relief may be an indication of gangrene, and therefore be evidence for an emergency operation.

Case 1. Mr. E. M., age 22 years (1927). History—Pain in the lower abdomen for 24 hours. He took a purgative after which his pain was worse. When admitted to hospital he felt fine. The abdomen was rigid, particularly in the lower segment; the blood count was 19,500 leukocytes, 87 per cent neutrophils.

At operation we found a gangrenous appendix.

Certain cases particularly when viewed in the light of results make one question

whether operation should be performed in some cases.

Case 1. Mrs. H. A. F., age 47 years (1923). Present illness began about four weeks before with an attack of pain in the lower right abdomen. No nausea nor vomiting. Pain remained constant.

On examination there was a mass palpable in the lower right quadrant of the abdomen.

Clinical diagnosis: acute appendicitis, probably with abscess.

At operation we found a large quantity of free peritoneal fluid. The appendix was closely adherent to the posterior cecal wall. After the appendix was removed the cavity from which it had been taken was enlarged and a large quantity of thick purulent material evacuated.

Five days after operation the patient complained of great pain in the left leg and thigh. Examination revealed marked redness and swelling of the leg, evidence of a thrombo-phlebitis.

Three days later temperature rose to 104°. There were rales at the base of the right lung and the patient succumbed from pneumonia which, I believe, was due to a septi infarct.

Case 2. Mr. S., age 45 years (1924). History—Pain for about 2 days during which period he was confined to bed. He was first seen on the days of the operation.

Examination revealed abdominal pain, tenderness, distention and rigidity. Blood count 26,000 leukocytes, 73 per cent neutrophils.

Immediate operation was done, at which time a large quantity of free pus was found. A fibrinous exudate was seen on the coils of the small intestine. The appendix was seen in the fossa between the cecum and ilium and removed.

Six days after the operation he developed an acute dilatation of the stomach, toxic nephritis, and death ensued.

In cases of this kind Wilkie's statement is particularly pertinent: "In late cases in reasonably good condition is one justified in interpreting the natural process of cure which by that time is well established? To operate on all cases at once is to allow reason to be overruled by prejudice."

Since some of these cases are in reality peritonitis one might add, to what Wilkie has said, the notable comment of George E. Armstrong: "The operating surgeon only

needs courage, not the courage of heroic activities, but courage to stay his hands."

It is easy enough to philosophize about these cases in the light of their end-results, but no hard and fast rule can be made and judgment alone in the individual cases must be our guide.

If we knew before hand much which we find out afterwards, it is easy to see how much better doctors we would be. Our best will be better if we analyze our own results, and try to profit by the experience of others.

Enough has been said about the appendix. Most of us feel, I believe, that early diagnosis and early operation will avoid many of the sad sequences of delay.

Another type of acute abdominal condition is acute gall bladder disease. The question as to whether these are emergencies or not is still being discussed and variously answered by some of the greatest masters dealing with the subject.

This may be illustrated by quoting from a recent paper by Bruggeman, read before the Western Surgical Association, December, 1927:

"Acute cholecystitis may be compared to acute salpingitis in that it rarely kills if treated conservatively. Surgical writers are prone to compare it to acute appendicitis, but this comparison is not in consonance with the clinical facts. Acute cholecystitis does not cause widespread peritonitis unless a perforation occurs early."

"Operation is indicated in any case when the diagnosis is questionable, or if a perforation is suspected. The greatest danger in this conservative treatment is the possibility of mistaken diagnosis."

"I feel that I have ample support in my position that operation is very seldom indicated. It is my conviction that as a rule operation should be avoided until the signs of active inflammation have disappeared."

Bruggeman quotes Walton, Leriche, Cotte, Kirscher and many other foreign surgeons who advocate cholecystectomy in acute cholecystitis; on the other hand, Haggard, Deaver, Bunts, Lyons, Judd, Richardson, George Muller, Archibald and many other American surgeons are opposed to operation in the acute stages.

Most of them are of the opinion that only the urgent cases should be drained. We have not considered acute cholecystitis as a condition warranting emergency operation.

In these cases where an empyema of the gall bladder or gangrene is associated, drainage operations are done. The friability of the gall bladder, the possible difficulty incident to ligation under these conditions and the fact that the gall bladder is usually well walled off seems to justify this policy.

Case 1. Mr. C. L., age 24 years (1927). History—Two days ago he was seized with severe pain in the upper right abdomen. The pain has been constant and severe. There was a prodromal malaise for a few days before the attack. Nausea was noted.

P. H. A year and one-half ago he was jaundiced for several weeks. Preceding the jaundice he had had pain in the upper quadrant of the abdomen, but not nearly so severe. Again about three weeks ago he had pain, not very severe. During the attack his stools were pale, the urine was dark brown and the perspiration stained his garments.

Abdomen: Marked rigidity of the upper right quadrant with considerable pain and tenderness in this region. There is slight rigidity in the lower right quadrant and very slight tenderness. We were unable to palpate the liver and spleen.

Leukocyte count 22,000, 87 per cent neutrophils.

Operation: Right rectus incision, its middle corresponding to the umbilicus, so that we could enlarge above and below as the case may be. There were no flakes of fibrin on the cecum. The appendix was small, almost of the obliterative type. There was a band covered by pericolic membrane. It was easily seen at a glance, that the appendix was not responsible for any of the man's present trouble. The hand introduced into the upper abdomen revealed a gall bladder which was about five inches long and its greater diame-

ter about two and a half inches. It was thick walled, tense and stood out against the surrounding collapsed organs as the evident cause of the disease.

The incision was prolonged upwards, the walls of the gall bladder were seen to be pale gray, very thick, and friable.

A cholecystostomy was done, and the abdomen closed. The appendix was not removed. He made an uneventful recovery.

Three months later a cholecystectomy was performed.

Case 2. Mrs. M. B. W. (1921). History—Pain in the back for six days which increased in severity. The pain radiated to the right breast. In spite of her pain she continued to work.

She had never had digestive disturbances of any kind.

Four days after the onset, the pain began to localize in the upper right quadrant of the abdomen. Two grains of codein failed to relieve her pain. The physician in attendance introduced 20 per cent magnesium sulphate solution through a Jutte tube for the purpose of draining the duodenal contents and the gall bladder. She vomited the tube, after which the severity of the pain increased so that $\frac{1}{2}$ grain of morphin had to be given.

The following day her temperature was 102°, pulse 108. The blood count at the time of her admission to the hospital showed 26,000 leukocytes.

Abdominal examination: Marked tenderness and pain in the upper right quadrant localized over the gall bladder. The examination otherwise was unimportant.

Diagnosis of acute cholecystitis with probable empyema of the gall bladder was made.

At operation we found a quantity of clear serious fluid. The small intestine was covered by a fibrinous exudate. The tip of the gall bladder was black. A rubber dam strip was applied over the gauze packs so if there was any spilling we would limit it to a certain extent. The incision was made in the gall bladder and about 6 ounces of thick bile was aspirated. The walls of the gall bladder were possibly 1/16 of an inch thick and when the finger was introduced into the abdominal wound, we were able to feel a large stone in the lower portion of the gall bladder, possibly obstructing the cystic duct. The stone was removed from the gall bladder after which a Pezzer catheter was introduced into the opening. The appendix was seen to be small and gave no evidence of disease and for that reason, no attempt

was made to remove it, believing that the prolongation of the operation under these conditions might possibly be disastrous.

Summary: This operation was done seven years ago. Our findings were acute gangrenous cholecystitis, cystic duct obstruction as well as general peritoneal reaction.

Reference to the operative record will show that there was a fibrinous exudate over the entire small intestine, the fundus of the gall bladder was discolored, the walls were thick.

The pain which she experienced was evidently due to the blocking of the cystic duct by a large stone. A cholecystostomy was done.

No effort was made to do a cholecystectomy as we believed that such an operation would probably have resulted fatally.

Jaundice is at times an indication for emergency procedure such as cholecystostomy in gall bladder disease.

Case Mr. H. J. F., age 35 years (Nov., 1927). Two weeks ago patient became jaundiced. The stools were, at times, normal in color, at other times grey. No pain had been experienced in the abdomen at any time. He had been nauseated and at times complained of an epigastric fullness.

Examination of the patient revealed a deep jaundice, patient extremely toxic and weak. The abdomen was distended, but no marked tenderness except in the right hypochondrium.

The Van den Bergh direct showed strong reaction. The leukocyte count was 9,000, 80 per cent neutrophils. Bleeding time was 2 minutes.

The roentgen-ray diagnosis was perforating duodenal ulcer.

He was seen by me first on November 23, 1927. Operation was done November 25, 1927; operation consisted of cholecystostomy.

This was done because of the marked toxemia and in the hope that the biliary drainage might relieve the jaundice and the toxemia incident to it.

The patient improved readily, his jaundice gradually cleared up, and 3 weeks after the operation the patient was allowed to go home.

Cholecystectomy was done February 25, 1928. At this time the patient was no longer jaundiced and the drainage from the gall bladder was only a clear mucus. The stools had normal color and we therefore felt that cholecystectomy was justifiable.

At operation we found a great many adhesions. We found the omentum adherent along the whole upper portion of the retracted peritoneal leaf.

These dense adhesions were cut through after clamping and the omentum transfixed and dropped back. The gall bladder was adherent to the peritoneum by a large omental fold. This was cut through and transfixed. The gall bladder was large and thick walled. There were no stones palpable, but there was a gland just at the cystic duct which was probably three-quarters of an inch in length and half an inch in the transverse axis. (The largest gland I have ever seen along the cystic duct.)

There were apparently no stones in the common duct, which was patulous and soft. The head of the pancreas was not hard—there was no evidence of an ulcer of the stomach or duodenum. The adhesions between the gall bladder and the omentum had produced a constriction of the duodenum and this in turn had caused a dilatation of the first portion of the duodenum.

As soon as these adhesions had been cut through, the duodenum filled out below. The gall bladder was removed then in retrograde fashion and the fossa peritonealized.

It should be noted that on the under surface of the liver, just beyond the gall bladder fossa, there was a small circumscribed, elevated nodule which was of a deeper color than the remaining portion of the liver. This presented a firm consistency.

For fear of getting into uncontrollable bleeding, I did not excise this mass which appeared to be inflammatory, rather than a malignant mass.

The abdomen was closed, without the use of a drain.

This patient has gained in weight, has had no recurrence of his jaundice, and has been able to return to his work.

Comments: This patient was markedly jaundiced, emaciated, and it was impossible to arrive at a definite diagnosis in spite of the fact that all of the laboratory tests, including Van den Bergh's, both direct and indirect, were utilized.

The pre-operative diagnosis was cholecystitis, cholangitis. The possibility of a carcinoma of the ampulla of Vater had to be considered.

The roentgen-ray diagnosis was perforating duodenal ulcer.

At operation as will be noted by the first operative record, as well as at the second, found no evidence of a malignancy.

The first operation consisted of a simple cholecystostomy, at the second a cholecystectomy was done.

SUMMARY

1. In gall bladder cases emergency operations are comparatively rare.
2. In acute cholecystitis if there is evidence pointing to perforation, empyema or gangrene, operation is an emergency procedure.
3. Cholecystectomy under these conditions may prove disastrous.
4. Cholecystostomy should be done, and at a later date cholecystectomy done with less danger to the patient.

PERFORATION OF GASTRIC AND DUODENAL ULCERS

Perforations of gastric and duodenal ulcers require immediate operative intervention if the patient is to be saved. The results obtained will depend entirely on the accuracy of the diagnosis and the length of time after the perforation occurs that operative intervention is instituted.

It is possible at times to confuse a perforation with an acute appendicitis, but as a rule the diagnosis can be made if the symptoms are properly interpreted.

When perforation of a gastric ulcer occurs in elderly people confusion sometimes exists and a diagnosis of retroperitoneal hernia, or even acute appendicitis, is made. Perforation is not unusual in the fifth and sixth decades.

The symptomatology and clinical findings in perforation present, as a rule, a definite picture.

The roentgen-ray can be of great value because of the finding of a gas bubble between the liver and the dome of the diaphragm which causes elevation of the diaphragm.

The type of operation must depend largely on the condition of the patient and the skill of the operating surgeon. In those cases where it is expedient to do

nothing more than close the perforation, if this closure does not interfere with the lumen of the pylorus, this procedure may be all that is necessary and certainly will suffice as a life saving procedure. Other operations may be done at a later stage.

The usual story in perforating ulcers is well illustrated in the following case:

Case 1. Mr. L. S. (1928). History—Abdominal pain began about 10 P. M. when he was attending to his duties as a policeman. The pain was so severe that it was necessary for him to sit down. He had a desire to vomit, but could not.

On admission to Touro Infirmary (11 P. M.), physical examination revealed a well nourished young man who was not particularly pale, but whose face presented an anxious expression, indicating an intense pain; pulse 90, good volume. Abdomen was rigid, particularly in the upper segment.

The radiologist was called and requested to make a picture of the abdomen.

The patient was then taken immediately to the operating room. The operation was performed within two hours of the onset of the patient's pain.

A large quantity of fluid which was cloudy and contained many particles of digested food was found.

As soon as packs were introduced, the stomach came easily into view, and immediately over the pylorus we could see an opening through which the gastric contents were spilling into the abdominal cavity.

The stomach was picked up and the discharge of its contents stopped in this way. Packs were introduced and the opening closed, transverse to the axis of the bowels. Two layers of sutures introduced; first row, chromic catgut; second row, fine linen.

The patient's condition was good, except that the anesthetist informed us that he was slightly cyanosed, and for that reason we did not proceed with a gastroenterostomy. His recovery was not marked by anything unusual.

Case 2. Mr. W. G. (May, 1914). Diagnosis: Perforating gastric ulcer. This young man had complained of an abdominal pain for two weeks. Nausea without vomiting had been present during this period. The pain had never been severe enough to cause the patient to go to bed.

He had had a similar attack one year before. In the interval he had had sour eructations following the ingestion of food.

When first seen at 1 P. M. in the office I found no evidence of rigidity but some epigastric pain and some pain to the right and left of the midline. Below the umbilicus there was no pain.

This young man was a medical student and the day of examination antedated the close of school by about two weeks, for that reason I felt it might be possible to delay interference until the close of school.

At 5 P. M. of the same day I was called because the patient had violent abdominal pain localized in the upper portion of the abdomen. He had not vomited. His temperature was 99°, pulse 80. Marked rigidity to the right of the midline above the umbilicus. Pain was so acute that he could not bear the touch of the hand. The patient was immediately transferred to the Presbyterian Hospital where he was operated on.

At operation (2 hours later) we found a large quantity of gastric contents pouring into the field. A perforation was found in the first portion of the duodenum. The edges of the ulcer were very friable and with great difficulty the perforation was closed because sutures did not hold.

Gastroenterostomy was not done.

The patient with the exception of a development of a fecal fistula had no trouble. He left the Hospital two weeks after the operation and 7 weeks after operation the fecal fistula had closed. His weight at this time was 158 pounds.

This operation was performed 14 years ago. The patient was seen about one year ago. At the present time he weighs about 185 pounds. He has had no further trouble.

There are cases which demand subsequent operation where the original operation consisted of closure of the perforation alone.

Secondary operation may demand excision of the ulcer or that combined with gastroenterostomy; or even more radical procedure.

This is illustrated in the case of Mr. P. S.:

February 9, 1922, I was called to see the patient because of intense abdominal pains. The patient was seized with these pains while at work at 4:30 in the afternoon. He immediately went home to bed, the pain being intense. It was more marked in the epigastrium and right iliac fossa. He had not vomited up to the time I saw him. In an attempt to get some relief he sat up in bed. When seen at home I found patient very very pale, sitting in the upright position, and he had

the facies of intense pain. Examination: Temperature subnormal 97 4/5°. Pulse 80, good volume, regular. Abdominal examination: All of the muscles contracted. The greatest amount of tenderness was noted in the epigastrium and iliac fossa. There was marked dullness below the umbilicus. Hyperresonance in epigastrium. Taken immediately to the Touro in ambulance where a leukocyte count was made, which was 19,500 with 85 per cent neutrophils. He was immediately operated upon.

Operation: High right rectus incision. When the peritoneum was opened a large quantity of thick yellowish fluid with air bubbles discharged from the wound immediately. The peritoneum was thickened and examination of the stomach from the cardiac end to the pylorus revealed nothing on the anterior of the body of the stomach. The pylorus was about 1/6 of an inch in diameter. Its walls were thickened and its edges everted. We could see the chyme pouring out of the opening. The opening was closed with chronic gut sutures No 0. *A small quantity of greater omentum was sutured over the opening as a protective covering.*

A gastroenterostomy was not done for two reasons, first, because I did not believe the man's condition justified any further operative procedure, and second because the sutures did not cause sufficient constriction to obtain the pylorus.

This patient required a second operation 8 months later because of recurrence of the symptoms.

At the second operation a gastroenterostomy was done.

Since the second operation, October, 1922, this patient has gained about 50 pounds in weight and he never has digestive disturbances.

Case II. Mr. E. P., age 22 years. (1914) Patient complained of "indigestion" for three weeks. He had abdominal pain on February 15. The patient took a dose of salts and his bowels acted within the hour. The pain persisted and began to localize around the umbilicus. Not being satisfied he took 5 grains of calomel.

On admission to Touro his temperature was 99°, pulse 102. There was pain on pressure all over the abdomen, particularly in the right iliac region, also the epigastrium, with rigidity of both recti.

The leukocyte count was 17,000, 94 per cent neutrophils.

Pre-operative diagnosis: Acute appendicitis.

Operation: A large quantity of sero-purulent material was seen. The appendix was covered with flakes of fibrin. The appendix was removed. *Further exploration, because of the great quantity of fluid, showed a perforation on the anterior wall of the stomach close to the pylorus. The perforation was closed. Gastroenterostomy was not done.*

Patient left the hospital three weeks after operation. A letter received from him April, 1923 stated that he had developed tuberculosis and he had recently been having "stomach trouble."

Comment on Case:

The history of indigestion, the sudden acute diffuse abdominal pain, and the generalized rigidity, without nausea and vomiting, probably should have directed attention to the possibility of perforation. *The fact that the appendix was covered with flakes of fibrin and was itself acutely inflamed shows how easily a case of this kind may have been closed without further search for the cause and the patient probably would have been lost because of the failure to recognize a perforating gastric ulcer.*

Case III. Mr. B., age 63 years (1914). Acute abdominal pain 5 P. M., October 29, epigastric and right iliac in character. Patient vomited.

Examination showed a man past middle age, well nourished and apparently acutely ill. The abdomen was extremely rigid. The greatest pain and rigidity was in the epigastrium. Blood count showed 12,100 leukocytes with 85 per cent neutrophils.

The patient was kept under observation for about 4 hours. Since the symptoms did not abate, the patient was operated upon and we found a perforating gastric ulcer.

A large quantity of stomach contents was seen pouring out of the perforation. The perforation was closed and the omentum sutured over the site of the perforation to act as a buffer.

The convalescence was uneventful and the patient left the hospital 11 days after operation.

When last heard from, about 5 months after operation, he was feeling perfectly well.

Another type of surgical emergency is one in which there is a gastric hemorrhage. A word of caution should be given here against surgical intervention with a view of trying to find the bleeding vessel. Gastric hemorrhage may be associated with esophageal varicosities, and with varicos-

ities in the stomach, or with diffuse hemorrhage from the stomach not particularly because of erosion of a vessel.

Archibald of Montreal has called attention to this and has advised transfusion in preference to gastrotomy.

There are times when gastric hemorrhage is associated with gall bladder and hepatic diseases. In some of these instances drainage of the gall bladder may prove all that is necessary.

This is illustrated in the case of Mrs. E. M.:

Patient, age 39 years (1925). History—Epigastric pain which had become more intense and was of the varying character. Pain was not increased by eating, but was less severe after vomiting. She had vomited blood several times.

On the night of July 20, 1925, she vomited a large quantity of blood.

When admitted to the hospital her pulse was 130, temperature normal. The patient was pale, but did not present a picture of an individual in shock.

Pre-operative diagnosis: Ulcer of the stomach, gastric hemorrhage.

Post-operative diagnosis: Cirrhosis of liver, cholecystitis, cholelithiasis, probable esophageal varices.

Operation: High right rectus incision. Large amount of fat both pro-peritoneal and subperitoneal. When the peritoneum was opened, there was no fluid found. The liver was seen to be very large, rough and presenting a mottled red and gray appearance. The gall bladder was thick walled and of grayish hue and it was distended. The stomach came into view. There were no adhesions about it. Its walls throughout presented the same consistency. No infiltration of the stomach walls either on the lesser or the greater curvature. The pylorus was perfectly free. No evidence of thickening. The first portion of the duodenum presented no abnormality, no infiltration or evidence of ulcer. To make certain that there was no ulcer a gastrotomy was done and a Cameron light introduced. No blood was found in the stomach. The rugae presented nothing abnormal. Sponge introduced into the stomach came away without more than a simple blood stain. The stomach was then closed—3 tiers of chromic catgut used. The gall bladder was palpated and we found two small stones in the

gall bladder. Inspection of the small intestine showed that they were filled with a dark bluish looking material giving the impression that there was blood in the bowel. Hence we had evidence of cholecystitis, hepatitis with stones in the gall bladder. It was thought expedient to drain the gall bladder and remove these stones. This was done. Chromic catgut used and pezzar catheter introduced, 2 small mulberry stones removed. The bile was thick and almost tar colored. The cystic duct was patent. Pancreas was palpated and no indurations found. Abdomen closed in tier suture. Patient left table in good condition.

While on the subject of hemorrhage one cannot pass without a word regarding those cases in which hemorrhage is part of a disturbance of the reticulo-endothelial system. In a case of purpura hemorrhagica after proper investigation of the laboratory findings, transfusion followed later by splenectomy will give the most spectacular result.

II. Traumatic Emergencies.

In this particular paper we will limit our discussion of traumatic emergencies to rupture of the abdominal viscera.

Rupture of a hollow viscus, excepting the bladder, and that in conjunction with fractures about the pelvis, are uncommon. Rupture of a solid viscus, such as the liver or spleen, are relatively uncommon, but this should not deter us from looking for it following violent injury to the abdominal wall.

It must be remembered in dealing with these, that pain is not a prominent manifestation. The patient does not show evidence of shock until hemorrhage has been severe.

During the first few hours following rupture of a solid viscera an anemia is not evident from the blood picture.

In two cases of rupture of the spleen, which I have seen and operated on, the blood count was respectively 4,565,500-4,950,000; hemoglobin, respectively 65 and 83. Hemorrhage is associated with leukocytosis. These phenomena have been ac-

cepted by most of the authorities for many years.

The physical findings, as a rule, when there is a rupture of one of the solid organs, are marked pallor, rapid respiration, low tension pulse, abdominal pain, rigidity of the abdominal muscles, dullness on percussion of the abdomen and fullness in the posterior cul-de-sac on rectal examination.

There are two definite indications in these cases—immediate operation and transfusion.

It is not sufficient for the surgeon to satisfy himself with "internal injuries" and wait for the post-mortem to reveal the facts which may have been obtained at operation, and a life possibly saved.

III. Operative Emergencies.

I think this subject may be discussed under the following headings:

1. The finding at operation of an unexpected condition. This is considered an operative emergency because it demands resourceful and prompt decision.

2. The injury to an important vessel, or hollow viscus.

We might begin by asking the following question: "Did it ever happen to you?"

Did you ever find at operation, when operating for what seemed to be a simple, indirect inguinal hernia, that you were dealing with a sliding hernia?

Have you ever been unfortunate enough to injure the common duct in doing a cholecystectomy?

Has hemorrhage, while doing an appendectomy or cholecystectomy, ever given you concern at the table?

Every surgeon of experience has been forced at times to admit before operation that the diagnosis in some cases has been undetermined and for that reason the expression, exploratory laparotomy, has been coined.

These operations are becoming less frequent as the diagnostic acumen of the operating surgeon and his medical conferees increases. But in spite of all laboratory aids there are times when one will find the unexpected condition at the table.

Such an instance is illustrated in the following cases:

Case 1. Mr. O. S. W., age 68 years. Patient complained of an epigastric pain which had existed for two months. Great loss of weight.

Five weeks before coming under observation he had had an attack of abdominal pain which he was unable to get rid of it. He went to an institution where he was purged daily.

Since admission to Touro Infirmary, on medical service, he had vomited only one time. No eructations.

Examination: Patient very much emaciated. Skin dry. Mucous membranes normal in color. Abdominal findings—Fulness below the umbilicus. Superficial veins well marked. There is a visible peristalsis. In the upper portion of the abdomen no definite mass could be palpated.

The roentgen-ray findings suggested a perforating ulcer. On account of the patient's age, great loss of weight, and icteric tinge of skin, and the filling defect in the colon as well as in the stomach, the clinical findings seemed to indicate the probability of a carcinoma either of the stomach or transverse colon.

At operation we found a subphrenic abscess which had been walled off from the abdominal cavity by plastic exudate which held the stomach firm out against the liver and diaphragm. As soon as the stomach was separated from the liver there was a spilling of some of the contents in the cavity. This necessitated immediately an intercostal drainage of the subphrenic accumulation, also an effort to cofferdam the opening leading into the general cavity.

Another type of operative emergency occurs in connection with gall bladder surgery where, during a cholecystectomy, the common or hepatic duct is injured due to an anomalous angle formed by the two ducts. If one sees a spilling of bile into the cavity, after the ligation of the stump of the cystic duct, careful search should be made for the injury in the hepatic or common duct.

This emergency had best be met by introduction of a tube into the duct or suture.

Such an experience once had will never be forgotten.

In connection with this the following brief summary may be cited:

Case 1. Mrs. K. P. (1916). Operative diagnosis: Empyema of gall bladder, cholelithiasis, cystic duct obstruction.

The gall bladder walls were extremely thick and the walls of the cystic duct were also very thick. After ligature had been placed around the cystic duct and the duct severed between the ligature and the clamp removed we saw that there was a drainage of bile from a lateral wound in the hepatic duct. A small rubber tube was introduced in the hepatic duct. This drained bile freely prior to closure of the abdominal wound.

In citing the above emergency those who have not been unfortunate enough to have such an emergency may be inclined to be a bit critical.

One of the most interesting of all emergencies is that which occurs in the course of apparently a simply indirect inguinal hernia when one finds that instead of a sac there are apparently adhesions everywhere and these "adhesions" when cut bleed very freely.

Some have had the experience of opening what they thought was a sac and found that they were within one of the hollow viscera, particularly the cecum or bladder. An attempt to separate the expected sac from the surrounding tissue is met everywhere by increasing bleed.

I recall being present in the operating-room when a surgeon was in such a dilemma and he was unaware that he was dealing with a sliding hernia. The so-called adhesions were in reality the vascular supply to the cecum and the ascending colon as they wound around the posterior parietal peritoneum from the roots of the mesenteries. He accepted the suggestion that he make a second incision after the plan of Moschowitz. Immediately the difficulty was overcome.

Until the recent work of Mochowitz the difficulties incident to this particular operative emergency were very great. His suggestions of making an incision along the outer border of the rectus muscle, as for an appendectomy, and introduction of a pair of sponge forceps from above to bring the abdominal viscera back into the cavity make it very easy to deal with this particular condition.

Nothing can be more embarrassing than to have a condition of this kind and not know just what to do with it.

In this connection I am reminded of the story of a certain doctor who was operating on a patient with a hernia. Someone asked, "Suppose that the hernia returns, what will you do?" his reply was, "Then the patient can wear a truss."

It is fortunate that there are few such men.

Hemorrhage during the course of any abdominal procedure, whether it be an appendectomy, cholecystectomy, or other condition, can produce a great deal of trouble. Indiscriminate clamping without having a clear field is to be deplored. The introduction of sutures blindly into the depths may do untold harm. A good exposure and an attempt to obtain a clean field will enable one often to see bleeding points. Do not close an abdomen unless you are satisfied that all bleeding is controlled.

Operative emergencies will be few in the hands of the experienced surgeon in proportion as his assistants are trained each to do his particular work and not everybody attempt to be the operating surgeon.

IV. Post-Operative Emergencies.

The post-operative emergencies may be immediate, as those which occur from shock and hemorrhage; those that come on after 24 or 28 hours, such as the acute toxemias following cholecystectomy, and those which occur at a later time such as alkalosis, evidence of an obstruction or an ileus, fecal fistulae, and post-operative eventration.

Many more might be mentioned, but those grave emergencies will supply a sufficiency for this particular reminiscence.

Post-operative shock from hemorrhage fortunately is diminishing and shock from all other causes will diminish in the hands of the individual surgeon in proportion to his experience, technical skill and the duration of the operative procedure.

Shock due to hemorrhage can be combatted in only two ways: first, the surgeon must not lack the courage to reopen the abdomen for the purpose of finding the bleeding points; second, transfusion and morphin represent the other measures which are of immediate value.

The acute toxemias which follow a cholecystectomy and which are characterized by a marked febrile reaction, vomiting and tachycardia can only be combatted symptomatically.

Alkalosis, evidence of obstruction, or of an ileus, is an indication for the use of large quantities of saline intravenously, by hypodermoclysis, and proctoclysis. At the same time relief of the obstruction is obtained by the introduction of the pezza catheter in the first loop of distended bowel which presents on opening the abdomen.

Post-operative eventration is one of the unfortunate surprises which the surgeon may find when he goes to dress a patient, particularly if the patient has been vomiting and there is distention of the abdomen. To say the least, this complication is disagreeable, but it is one which every surgeon of experience probably has faced. The indication is immediate resuture of the abdominal wall.

This is only a brief summary of some of the causes of premature old age found among surgeons.

To lessen these complications we must be continually on the alert for anything which will make us better diagnosticians as well as better technicians.

DISCUSSION.

Dr. A. J. Comeaux, (Youngsville, La.): I agree with Dr. Cohn's statement in regard to the advisability of immediate operation in these cases. Just a few days ago I had one of these surgical emergencies. The patient was taken suddenly ill at 3:00 o'clock in the morning and I was called to see him. I saw him at 6:00 o'clock and made a diagnosis of appendicitis. At operation the appendix was perforated, one-half of it gangrenous and fecal contents had escaped into the abdominal cavity. Drainage was instituted.

I left this patient in the care of another physician and I hope that he recovers.

Dr. Joseph Cohen (New Orleans): I wish to supplement what Dr. Cohn says, especially in regard to old people. We ought not to hesitate too long to operate on old people who show signs of appendicitis, no matter what the laboratory findings are, for often their blood counts are misleading. Old people are very prone to have a ruptured and gangrenous appendix. I can recall three cases.

First Case: An old lady of 72 years, the mother-in-law of a doctor, drank a coca-cola and shortly afterwards experienced pain. On examining her I decided she had appendicitis. Her blood count and temperature were normal, but I operated anyway and found an appendiceal abscess. Drainage was instituted. Subsequently she developed a fecal fistula which healed spontaneously and she is now all right.

Second Case: An elderly lady of sixty-two, shortly after eating some nuts, was seized with abdominal pains which she attributed to indigestion. Her blood picture was normal. Examination of urine showed four per cent sugar. She was operated upon under local and in this case also I found an appendiceal abscess, which was likewise drained. The patient recovered.

Third Case: Only a few days ago a lady fifty-eight years old was seized with abdominal pains, also after eating. A consultant was called. The signs were so indefinite that he advised waiting until morning. I asked her people to allow me to operate at once, and they agreed. She had a gangrenous, ruptured appendix.

The point I wish to bring out is this: old people do not present the same picture as young people; they have not the resistance to give the blood picture and it is a safe thing to go on your diagnosis and not wait, but operate at once.

Dr. O. C. Cassegrain (New Orleans): A type of case that truly comes under the heading of

surgical emergency, which on account of lack of time Dr. Cohn barely touched upon, is intestinal obstruction. In dealing with this condition, I should like to see surgeons in general adopt the same attitude towards it that is taken in handling cases of acute osteomyelitis, viz: immediate operation. We do not hesitate, in fact, we teach our medical students to cut down on the bone when acute osteomyelitis is suspected, and by so doing prevent the tremendous deformities which follow neglect, or surgery too long deferred. In dealing with intestinal obstruction delay is fatal. To wait until the condition is frankly diagnosable means death. So whenever a doubt arises as to whether we are dealing with obstruction, I think an exploratory laparotomy is not only permissible, but urgent. And this applies to every case irrespectively, the suspected and the recognized.

Four or five years ago I lost a patient with intestinal obstruction just because I was in doubt about the diagnosis. The first enema given returned frankly clear, was repeated, and again came back clear. I waited for fecal vomiting and lost thirteen to fourteen hours, by which time the patient was too toxic and far gone to derive benefit from any treatment. Since then, whenever a patient comes in with abdominal distension, with or without vomiting, an enema is given and if it returns clear, I consider that a positive reason for going in and exploring. Whether the enema is slightly colored or clear, if the patient gives signs of obstruction, by all means an exploratory laparotomy should be performed. Do not wait for the blood chemistry—go ahead and operate and save the patient's life.

Dr. Isidore Cohn (closing): Just for the benefit of everybody else, I wish to state that I do not believe Dr. Cassegrain meant some of the things he said. It does not take so long to get a chemical analysis of the blood and we should not "pooh pooh" at these laboratory aids which can be of assistance to us. Every hospital has a laboratory that can do a Wassermann and a blood chemistry and it takes but a little while to find out if there is a rather high carbon dioxide combining power and a fall in the blood chlorides. I am sure Dr. Cassegrain did not mean to give the impression that whenever an enema was given and it returned clear that the patient had intestinal obstruction.

THYROTOXICOSIS—ITS SYMPTOMS AND IMPORTANCE OF EARLY RECOGNITION.

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The thyroid gland has long demanded the attention of the internist and surgeon, from the standpoint both of diagnosis and treatment.

The diseased thyroid gland is one of the most outstanding conditions that we encounter and one of the most complex that we have to evaluate in the examination of certain patients that present manifold symptoms.

The essential cause of goiter is unknown, although it is thought that eventually it will be proved to be due either to the direct infection of the thyroid with bacteria or the indirect action on the thyroid of toxins from infections in other regions, such as the teeth or tonsils, and in the latter belief I think all will agree that such foci of infection should be gotten rid of as a preliminary to operation or treatment.

Goiter is much more common in women than men, and this is believed to be due to the fact that the thyroid is a sex gland and disturbances or diseases of the organs of reproduction are more frequent in the female than in the male.

The thyroid gland is in many respects the most wonderful organ in the body. Through its internal secretions, it influences the physical development of the child and the mental activity of the adult. It regulates the growth of bone, the formation and distribution of fat and the nutrition of the skin, teeth, hair and nails. It plays an important part in menstruation and parturition, and has much to do with the sexual desire and power. It influences the rate of the heart beat and the character of the peripheral circulation. It presides over

the nitrogenous metabolism of the body and in other and perhaps unsuspected ways plays an important part in the human economy.

If thyroid secretion is excessive there are symptoms of metabolic riot. Heat production and gaseous interchange are rapid. The body tissues are stimulated to a cause of wasting dissipation. There are seen tremors, sweating, tachycardia, muscular weakness, loss of weight and feverish mental activity. The evidence of thyroid excess suggests the entrance of tragedy into the life of its subject.

If thyroid secretion is deficient the metabolism of the body is depressed and heat production and gaseous interchange are at low ebb. In the young, growth is lessened and the skeletal system is undeveloped; the connective tissue cells remain myxomatous. The skin is dry and the hair coarse and shows deficient nourishment. The nervous system halts in development and mentality does not rise above the level of the infant. Physically and intellectually the victim of thyroid poverty is less the man, more the beast.

Toxic goiters develop in patients who usually have had a simple adenomatous goiter for years. These patients, in addition to the symmetrical enlargement of the thyroid, have nervousness, tachycardia, coarse tremors of the fingers, and marked loss of weight and strength. Their basal metabolism is perceptibly increased. Unlike the exophthalmic type, they have no marked changes in the eyes. Owing to the character of the disease there is apt to develop secondary degenerative changes in certain vital organs, such as the heart, liver and kidneys.

There are two types of thyroid toxicity, primary hyperthyroidism or exophthalmic goiter, and secondary hyperthyroidism or toxic adenoma. The primary form comes from excessive secretion of the gland itself, while secondary hyperthyroidism comes from an excessive secretion of the thyroid cells within the adenoma.

*Read before the Delta Medical Society April, 1927.

The diagnosis of thyroid toxicity in frankly toxic cases is simple. The less frank cases perhaps without exophthalmos and goiter with uncertain tremor often with little or no loss of weight, may cause some diagnostic difficulty when it comes to determining whether the symptoms are partly due to thyroidism and part neurosis, or whether they are wholly neurotic in origin. The introduction of the metabolic test bids fair and is doing much to settle many questions under discussion.

It has been demonstrated that the thyroid regulates the general metabolism of the body and that an increase or decrease of thyroid activity is accurately shown by corresponding changes in the patient's metabolic rate. Hence, by determining the degree of metabolism, we now have a scientific means by which we can estimate thyroid activity in an individual case and can tabulate mathematically the effect of the various forms of treatment that are advocated for its abnormalities.

The difficulties in the diagnosis of thyroid toxicity in general practice are many. To be able to differentiate it from the many diseases and conditions with which it may be confounded requires careful history taking, physical and clinical examination and the use of the metabolic rate estimation. Even with all the combined means available a recheck is advisable to reassure one that there is no error.

Since so much has been said about Lugol's solution being a cure-all for goiter, and since a great many patients are taking all kinds of iodine for supposed goiter, it is a good idea to question along this line, because Lugol's solution will and does mask some of the symptoms of thyrotoxicosis and makes some patients feel so much better for a time at least that they will say to you, "Oh, I do not need an operation now I feel so much better." This solution has no place in the treatment of thyroid toxicity other than preparing such patients for thyroidectomy which is the only sure cure for thyrotoxicosis.

There has not yet been sufficient experimentation or practical experience with basal metabolism to determine its exact clinical value, but we usually find that the basal metabolic rate corresponds pretty closely with the patient's history and symptoms and with the pathological findings of the specimen removed. On the other hand, there are so many factors to be taken into consideration that we cannot rely on the metabolic rate alone. Certainly we should have repeated readings. There is one conclusion, however, in this regard and that is that a repeated high metabolic rate means thyroid toxicity.

The onset of hyperthyroidism is usually so gradual that it is difficult to recognize it in its incipency and here the metabolic rate will clearly differentiate it from hysteria, neurasthenia, tuberculosis and other conditions with which it may be confused. In these cases one must be extremely critical, as operative procedure in conditions of non-thyroid origin not only fails to improve the condition but actually intensifies the symptoms. Repeated metabolic estimations are of great value in these cases. Active hyperthyroidism has been found not to exist in the absence of an elevated basal metabolic rate. Hyperthyroidism with its associated increased metabolism can be cured only after the basal metabolic rate has returned to normal. Neurotic cases may at first show an elevated basal metabolism but this is found to return to normal gradually if several tests are made. The most intensely toxic thyroid patients may not have a goiter and a very large percentage of the cases of primary hyperthyroidism may have a thyroid gland of only average or normal size; a definite number have a gland smaller than normal.

The effect of thyroid toxicity on the heart is an important part in the diagnosis, treatment and prognosis of thyroid disorders. The common complaint of patients suffering from thyroid toxicity, forceful heart beat with undue breathlessness and

easy fatigue in exertion, draw the attention of both patient and physician to the heart. These same complaints occur very commonly among patients suffering with neuresthenia. It is a common diagnostic problem to differentiate heart disease, thyroid toxicity and neuresthenia.

Thyroid disease has a direct effect on the heart in certain cases and eventually affects the heart seriously. Commonly the heart rate is distinctly rapid. Even at rest in bed it tends in most definitely toxic cases to beat at a rate of 100, and rates of 150 are not uncommon. However, we occasionally see cases with a rate at times of 80.

By far the most tragic of undiscovered thyrotoxic cases are those treated for heart disease. If a careful and painstaking examination is made in so called cardiac cases we will find a great many are curable by the removal of the thyroid gland.

All cases, whether clear cut or doubtful, need careful routine history and physical examination for in many individuals with thyroid disease we find many other conflicting disorders.

It may simulate the nausea and vomiting of pregnancy and in cases of this kind who have amenorrhea, diagnosis is quite difficult.

It may simulate an acute surgical abdomen and I can implicate myself on having invaded the abdomen for the removal of organs not productive of disease and left the patient with her thyroid and thyrotoxicosis.

In sudden diarrhea or attacks of vomiting lasting for several days or several weeks, the possibility of hyperthyroidism should not be forgotten, for they play an important part in some cases with obscure symptoms, especially in some cases previously operated without removal of sufficient gland tissue.

Unaccountable loss in weight should suggest thyroid toxicity, and is commonly present. Only rarely do thyrotoxic cases

gain but fluctuations in weight with fluctuations in toxicity are not uncommon.

The difficulties in arriving at a diagnosis in many cases that come to me is my only excuse for calling to your attention such a voluminous subject—a subject that has caused me some chagrin, anguish and at times shame that I have not properly diagnosed a case when I could have done so had I put the proper amount of reasoning and study on it that I should have and saved my patient much suffering and expense.

We must realize that thyroid toxicity is of haphazard onset. It may occur to any patient any time. Its symptoms are variable. They follow no set course. Many of its common symptoms are common to the commonest of all complaints, neurasthenia.

The alert diagnostician will suspect thyroid toxicity many times in cases in which it does not exist but if he carefully confines his diagnosis the occasional correctly suspected and proved case will be a source of much satisfaction to himself and his patient.

SOME INTERESTING SPINAL CORD LESIONS*

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In presenting this subject, I have selected four cases involving the spinal cord which I think might prove interesting. Two of the cases are cauda-equina tumors; one case uni-lateral lesion of the cord giving a Brown-Sequard syndrome; and a case of an extradural abscess of the cord.

Before presenting these cases in detail, I wish to bring before you some of the most important points in the symptomatology of spinal cord tumors and also of the other two cases included in my report.

The most frequent tumors of the cord and the cauda-equina are sarcomata, chondroma, tuberculoma, carcinoma, glioma,

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endothelioma and neurofibroma. They are found extradurally, durally, intra-durally, and intra-medullary. They may occur at all ages and at any level of the spinal cord. The most important symptoms of cord tumors are as follows: Sharply localized pain at the site of the tumor; most commonly the pain is unilateral, but may be bilateral. Motor compression signs are variable, depending upon the duration and severity of the compression. There may be paresis, advancing to paralysis, hyper-tonicity, spasticity, increased reflexes, positive Babinski, and ankle clonus. At the level of the tumor there may exist a destructive lesion, giving signs of peripheral motor neuron disease, atrophy reaction of degeneration, loss of reflexes, and tropic changes. The sensory changes are variable. However, there is usually an area of hyperalgesia at the level of the lesion which grades off into anaesthesia below the lesion. Bladder and rectal disturbances are frequent; there may be disturbances of the epicritic sense, usually diminished; also, there may be complete loss of all sensations, as well as the superficial, and deep reflexes if the compression of the cord is complete.

Symptoms of tumors of the cauda-equina give the characteristic lower motor neuron type of lesion, in contradistinction to the upper motor neuron type, given by tumors of the cord. The descending roots of the lumbar, sacral, and coccygeal nerves make up the cauda-equina, which occupies the dural sheath below the upper level of the second lumbar vertebrae, a distance of about ten inches.

Pain is one of the first symptoms which appears, often originating as lumbago, later radiating to the sacrum. The pain then becomes sciatic in distribution, often bilaterally, with intervals between attacks, and growing progressively worse. The pain is usually worse while in a reclining position.

An area of anesthesia about the rectum and perineum is a constant symptom. A slight loss of bowel and bladder control is a nervous symptom, usually preceding the motor weakness. There is absence of rigidity and diminished patellar reflexes; negative Babinski and ankle clonus. Lumbar puncture here, as well as in tumors of the cord, yield a dry tap or a straw colored fluid under decreased pressure; that is if the puncture is done below the site of the tumor.

My third case, a unilateral cord injury, presents the typical Brown-Sequard syndrome. I report this case through the courtesy of Dr. Guy A. Caldwell, who performed the laminectomy. In this case we failed to determine the degree of pressure upon the cord by using the Queckenstedt test, but we felt justified in doing the operation because of the neurological findings and also the roentgenogram, which reported a fracture of the seventh dorsal vertebrae with slight displacement. The operation was performed thirty-six hours following the injury.

My fourth and last case is, I think, a rather unusual one. This case one of an extradural abscess of the lumbar cord, was also operated on by Dr. Guy A. Caldwell. I report this case through the courtesy of Dr. T. P. Lloyd and Dr. R. L. Douglas of the Highland Clinic.. This patient had been in the hospital eight days before we were sure of the diagnosis and had localized the abscess. Although this patient had complete paralysis of the bladder, we were able to avoid any troublesome infection, which is also rather unusual in these cases.

Case 1. Cauda-equina tumor—Stanton Davis, colored, male, age 45 years, admitted to Schumpert Sanatorium September 7, 1924. Complaint: Pain in back radiating down both legs. Family History: Unimportant. Personal History: Usual diseases of children. Has had no serious illness of adult life. Venereal History: Had a chancreoid 20 years ago, also one two months ago. Gonorrhea several times, last time, two months ago. Present Illness: In August 1923, while laying brick, began to suffer with pain in lumbar region, which

at times was very severe. Six weeks ago pain became acute, and three weeks ago pain became confined to limbs, and sacral region. Pain radiated down both thighs, especially external surface of right thigh. The left foot became numb and for the past year has gradually grown weaker in both legs. At the present date, both legs tire easily from exertion. Neurological examination: Pupils equal in size, irregular in outline, react a little sluggishly to light and accommodation; ciliospinal reflex present; consensual reflex present. Deep reflexes: Normal in upper extremities; diminished in right lower extremity; absent in left extremity. Babinski-Oppenheim, Gordon, Chaddock, ankle clonus, and plantar reflexes, negative. Superficial reflexes: Abdominal, cremasteric, pharyngeal, and corneal reflexes present. Sensation: Normal over upper extremities and trunk. Area of anaesthesia around anus and extending over buttock for an area of about three inches, also over perineum; more over right. Sensation normal over lower extremities, except for area over lower inner surface of thighs, and over both feet below ankles, especially over external surface where all forms are absent. Cardiovascular, respiratory and gastro-intestinal systems, negative. Laboratory findings: Urine, negative; blood Wassermann, negative; Spinal fluid analysis: Cell count, 10; globulin, normal and Wassermann negative.

Procedure: Spinal puncture between third and fourth lumbar vertebrae gave clear spinal fluid, under sixteen mil. pressure. Puncture between fourth and fifth lumbar vertebrae gave a straw colored fluid under same pressure. Puncture between fifth lumbar and first sacral vertebrae yielded a straw colored fluid under same pressure. Puncture between fifth lumbar and first sacral vertebrae yielded a straw colored fluid under five mil. pressure.

Diagnosis: Cauda-equina tumor, localized at level of fifth lumbar vertebrae.

Operation: On September 16, 1924 a laminectomy was performed by Dr. J. C. Willis, Jr., and a fibroma was found pressing upon the cord posteriorly, underneath the body of the fifth lumbar vertebrae.

Case 2. Cauda-equina Tumor—White, male, age 37 years, entered Sanatorium November 2, 1927. Family History: Unimportant. Past History: Rheumatic pains in both thighs and lumbar region for several years. Venereal History: Negative for any venereal infection. Present Illness: For past seventeen years patient has suffered with lumbago. Can't remember just when pain began in thighs, but it became acute in December, 1926, with partial loss of control of both bladder and bowel, also motor weakness in lower extremities.

This attack gradually diminished in severity and he regained control of his functions. On October 19, 1927, two weeks previous to entering hospital patient had an acute attack similar to the one he had experienced, so he came to the hospital for relief.

The attack began with acute pain in lumbar region radiating down both sciatic nerves, followed by loss of control of bladder and bowel, also motor weakness. Constipation was marked.

Neurological Examination: Deep reflexes lower extremities; patella reflex exaggerated bilaterally. Pathological reflexes: Negative. Superficial reflexes. Left cremasteric present, right, absent; upper abdominal reflexes present and lower diminished. Coordination: Heel to knee normal bilaterally. Sensation lower extremities: Tactile sense normal, with exception of area of anaesthesia extending from anus for a distance of five inches over left buttock and perineum, and three inches over right buttock, also area of anaesthesia involving the back of left thigh to about three inches above knee joint and on right to level of knee joint. Propathic sense: Same as tactile; sense of position and tuning fork sense normal bilaterally. Laboratory findings: Urine, negative; blood Wassermann, negative; Spinal fluid analysis: cell count, 3; globulin, normal; sugar, 60 mgms; total protein, 20.8 mgms; Wassermann, negative. Procedure: Lumbar puncture between third and fourth lumbar vertebrae, yielded a normal fluid pressure. Lumbar puncture between fourth and fifth lumbar vertebrae yielded a dry top.

Diagnosis: Cauda-equina tumor at level of fourth lumbar vertebrae.

Operation: An exploratory laminectomy was performed by Dr. J. C. Willis, Jr., on November 11, 1927. An extradural osteoma was exposed, about the size of end of little finger, on body of fourth lumbar vertebrae.

Case 3. Unilateral cord injury—White, male, age 22 years, admitted to Sanatorium August 30, 1927. History: On the night of August 29, while driving an automobile, patient dropped off to sleep and six hours later was found near his wrecked car. He had been unconscious practically all of this time, and on recovering consciousness was unable to move right leg. He was taken to a nearby hospital and given emergency treatment and catheterized. Patient complained of the bladder and bowels and hypersensitiveness of skin over abdomen. He could move his left leg without difficulty, but his right leg was useless. Neurological Examination: Pupils, equal; regular in outline; react to light and accommodation; cranial nerves, intact; sensation, coordination and

deep reflexes, normal in upper extremities and to level of costal border bilaterally. Tactile sense lower extremities normal; pain, heat and cold diminished over right limb up to level of eighth dorsal segment, and complete absence of these sensations over left limb up to level of twelfth dorsal segment; paralysis of right limb, with absence of all deep reflexes, also superficial reflexes. Tuning fork sense diminished in right limb and normal in left. Muscular power normal left limb, however, both deep and superficial reflexes absent. Laboratory findings: Urine, negative; roentgen-ray examination, lateral view, showed a curved fracture of seventh dorsal vertebrae without displacement.

Diagnosis: Unilateral cord injury presenting Brown-Sequard syndrome.

Operation: On August 30 an exploratory laminectomy was performed by Dr. G. A. Caldwell. The seventh dorsal vertebra appeared abnormally mobile and the interspinous ligaments were torn loose. The cord appeared to be angulated at the level of the seventh dorsal vertebra, and there was evidence of an extraural hemorrhage at this point. The dura was opened with escape of a large quantity of spinal fluid under pressure, but on inspection the cord appeared normal.

Case 4. Extradural abscess of lumbar cord—

White, male, age 19 years. Admitted to Sanatorium August 16, 1927. History: Onset of condition July 15, with dull aching pain in lumbar region. This pain continued and on August 1 he noticed a stiffness in muscles of lumbar region. On August 14 patient developed an acute pain in lumbar region, incontinence of bladder and bowel, and loss of motor power in lower extremities. During latter part of July patient had several furuncles on his body. On admittance to Sanatorium was running temperature ranging from 99½° to 100.5°. Neurological Examination: Pupils equal, regular in outline, react normally; cranial nerves, intact; Brudzenski, marked; tremors, negative; coordination in upper extremities, normal and also sensation and deep reflexes; in lower extremities there is loss of motor power; there is complete bilateral anaesthesia from below upwards to a point about the lower one-third of leg. Above this point all sensations are normal. Deep reflexes are absent, also pathological reflexes: superficial reflexes: lower abdominal and cremasteric, absent bilaterally; upper abdominal, diminished bilaterally. Laboratory findings: Urine, negative; total white cells, 18,500; differential white cell count, N 80; SM, 17; LM, 3; total red cells, 4,500,000; hemoglobin, 80 per cent; blood culture and Wassermann, negative; Spinal fluid analysis from cisterna puncture: cell count, 2; globulin, 2 plus; total protein, 38.5 gms; Wasser-

mann, negative; smear, negative; colloidal gold curve, 0000000000.

Roentgenograms of thoracic and lumbar vertebrae on 9/22/27, showed negative for pathology. Roentgenograms of thoracic and lumbar vertebrae on 10/8/27, showed destruction of cartilaginous surfaces of 1 and 2 lumbar vertebrae.

Procedure: On August 17 a lumbar puncture was made between the third and fourth lumbar vertebrae and a clear fluid was obtained, which coagulated after having been withdrawn half an hour. It was impossible to make an analysis of this fluid. This fluid was typical of the massive coagulation of Froin, due to spinal cord compression.

On August 18 a lumbar puncture was made between third and fourth lumbar vertebrae and a dry tap was the result. Immediately following a puncture was made between second and third lumbar vertebrae and a dry tap was the result. Next a puncture was made between first and second lumbar vertebrae and a blood tinged fluid was obtained. Due to the fact that so far we had not obtained a fit specimen of fluid for analysis, we decided to do a cisterna puncture.

On August 19 this was done and a clear fluid was obtained under normal pressure, and analysis of this fluid was normal in every respect. We felt justified then in making a diagnosis of an incomplete transverse myelitis, probably due to an abscess localized at level of tenth thoracic segment, equivalent to the first lumbar vertebrae. A laminectomy was advised.

Operation: On August 23 an exploratory laminectomy was performed by Dr. Guy A. Caldwell. After removing the spinal processes of the first and second lumbar vertebrae an extradural abscess was located. As the spinal process of the second lumbar vertebrae was removed a thick white pus under tension welled up about the cord.

Comment: All of these cases have been observed from a period of three months to a year following operation: The two cases of cauda-equina tumor at the time of observation had regained control over bladder and bowel to quite a degree and also had regained much of the motor power of lower limbs. The case of unilateral cord injury was seen six months after operation. Sensation and motor power was greatly improved, and had also regained control of bladder. Patient walked with slight limp, which was hardly perceptible. This was due to a slight spasticity in right leg. Dr. Caldwell had this patient use a brace for sometime following operation.

The case of abscess of lumbar cord made a very good recovery. He was seen three months following operation and at that time was able to move both thighs slightly. He had not regained control over bladder and bowel; however, these functions had improved. Even after the maximum

improvement this patient will no doubt have a permanent paraplegia.

CONCLUSION.

1. The cases of unilateral cord injury and lumbar cord abscess show clearly the value of early laminectomy in acute compression of spinal cord. The former was operated on within 36 hours, and made practically a complete recovery, where as, the latter was not operated on until several days after onset and will no doubt have a residual paraplegia.

2. The spinal fluid in the case of abscess presented the Froin syndrome. Xanthochromia was not present but massive coagulation was, and this characteristic alone stamps it as Froin's syndrome.

3. The Queckenstedt test is a simple test and the test of choice to determine the degree of spinal cord compression. I did not use it in three of our cases because of a dry tap in two cases and xanthochromia in the fluid of the other gave me the information desired. We neglected using it in the unilateral cord injury where it would have been of value.

DISCUSSION.

Dr. L. L. Cazenavette (New Orleans): I wish to thank Dr. Kerlin for his courtesy in asking me to open the discussion and I also wish to congratulate him on his masterly presentation of these four interesting cases of spinal cord lesions.

It may be interesting to note the frequency with which spinal cord tumors are met with as compared to tumors of the brain and to tumors affecting other parts of the body. Spiller and Frazier have studied this particular phase of this subject and report that the ratio of cord tumors to brain tumors is one to six; and the ratio of cord tumors to general tumors is one to fifty. Thus we are led to the conclusion that such conditions are not met very frequently. However many observe believe and I am of their opinion, that many cases of spinal cord tumors go undiagnosed as such or are diagnosed as chronic forms of transverse myelitis, sciatica, neuritis and what not.

With regards to the symptomatology of spinal cord tumors should say that this will depend on the particular part of the cord or nerve roots involved or compressed by the growth. By far the most frequent early symptom is some form of sensory manifestation which may vary in severity from a mild paraesthesia to a most severe root

pain. The distribution of the pain is most frequently in the lumbo-sacral region and extending around the body or down the extremities. This pain is peculiar in as much as it increased by certain efforts such as stooping, sneezing, coughing and straining at stool, and it is relieved by standing and walking. Of the lesser sensory manifestations hyperalgesia in a definite area is frequently an early symptom.

I recall seeing a patient whose most marked symptom was one-sided hyperalgesia in the lumbar region. A diagnosis of cord tumor was made and verified at operation.

The indefiniteness of symptoms often render the diagnosis of spinal cord tumors and cauda equina tumors difficult. Many patients have suffered for years before a definite diagnosis was made. The time elapsing between the onset of symptoms and diagnosis, operative, has varied on an average from two years to ten years. Fortunately, however, the numerous studies, observations and recent articles in the literature by neurologists in this country and abroad on this important subject especially with the help of radiography and lipiodol injections have contributed in a large measure towards earlier diagnosis. Doctor Kerlin is to be congratulated on the early diagnosis in his cases.

The case presenting Brown-Sequard syndrome following injury is of interest because of the promptness of diagnosis and relief by operation.

Now the case presenting abscess of the cord is also of interest because of the rarity of such conditions. A survey of the literature up to 1926 on the subject of spinal cord abscess and report of a case by H. W. Woltman and A. W. Adson and reported in "Brain," issue of June, 1926. They were able to collect only twenty-nine cases reported. A very low incidence as compared to abscess of the brain. They give as reasons for this low incidence: the relative smallness of the cord, the small lumen and indirect course of the vessels entering the cord and the protective location of cord compared to that of the brain which is in close proximity to several sinuses.

My congratulations again to Dr. Kerlin in reporting the thirty-first case of abscess of the spinal cord. I thank you.

Dr. Guy A. Caldwell (Shreveport): My point of view in these two cases is that of an orthopedic surgeon. The most important points in the diagnosis of the extra-dural abscess were in the history. The essential features of the story, its onset and progress, constitute a clinical picture not difficult to recognize although it is seen in the vertebrae less frequently than in other bones.

The cardinal symptoms placed in chronological order appeared as follows:

1. History of furunculosis for some time prior to onset of serious symptoms.
2. Sudden onset with a chill, high fever, and severe pain localized in the region of the upper lumbar vertebrae. These symptoms grew worse and were accompanied by intense muscle spasm and a greatly increased white cell count.
3. Persistence of these findings (referable strictly to the bony structures of the spine) for a few days, then the gradual development of paralysis,—first in one leg, then the other, and finally involving the bladder and rectum.
4. The lumbar punctures at various levels gave conclusive proof of complete blockage of the spinal canal, but examination of the fluid also demonstrated that the process was not an inflammation located inside the dural coverings.

The obvious conclusion was that we were dealing with an abscess which had developed in the body of some of the lumbar vertebrae or in the intervertebral spaces, and as it enlarged, had pressed against the cord coverings without penetrating them.

The indication to operate for relief of pressure was clear. As we went down on the spine, pus was encountered in the muscular layers, but incision and drainage seemed inadequate when the pus was seen to boil out thru the intervertebral foramina. The spines and lamina of two vertebrae were then removed but the meninges were not opened for obvious reasons. Fortunately the immediate outcome was good although the patient was an exceptionally poor surgical risk.

The prognosis as to return of function we felt was extremely doubtful but as the months have passed he has slowly regained strength and sensation and at this time (July, 1928) goes about quite actively with his braces and crutches.

Dr. G. C. Anderson (New Orleans): Dr. Kerlin very kindly asked me to discuss this paper as I am vitally interested in this type of surgery. The symptomatology has been so adequately covered by both the author and Dr. Cazenavette, that there is very little to add from that standpoint. One point I want to stress is that these patients have pain after lying down, they feel reasonably comfortable while up and about but after two or three hours sleep they will be awakened by severe pain which is relieved by sitting in a chair or walking about. Many sleep in chairs. The explanation is probably that the tumor is attached to one or more nerve roots and as the upright position is the one assumed most of the time it becomes more or less fixed in such a relationship,

upon assuming the recumbent position the relationship is changed, the tumor changes position and so drags upon the nerve root.

There are a few relatively simple aids in diagnosis which I desire to mention. The first is the diagnosis of a subarachnoid block by the Queckenstedt test or as it is called in this country the "response to jugular compression." A spinal puncture in the lumbar region is done in the ordinary way the patient lying upon his side; a manometer is connected with the needle and a pressure reading taken after waiting three minutes or so for the patient to become composed and comfortable, the neck should not be flexed. Light pressure upon the jugular veins upon either side of the neck will cause an increase in intracranial pressure by interfering with the venous drainage, this pressure forces the cerebrospinal fluid out of the ventricles and down the spinal canal and the level of the manometer reading will rise sharply and fall when the pressure is removed. This is a simple and easy test, a spinal manometer is not required as the ordinary mercury manometer used for blood pressure readings may be used.

The second method is the introduction of air into the spinal canal after withdrawal of cerebrospinal fluid. The air will rise as high as the block and this level can be determined by roentgenological examination. At the time of injection the patient will probably report severe pain in the region supplied by the nerve roots at the level of the lesion due to pressure at that point.

The third measure is the use of lipiodal, a 40 per cent iodized oil, which is introduced into the subarachnoid space. It may be injected either below or above the lesion as one seeks to determine the lower or upper level. The substance is denser than cerebrospinal fluid and will sink. If injected below the suspected level to determine its lowest point the patient will have to be inclined upon a table with the head lower than the feet. As the substance is opaque to roentgen-rays such an examination will show the level at which it is arrested in case of a block. A certain amount of irritation follows its use but this should not prove a deterrent when it is felt it will be of diagnostic aid. The general procedure is to introduce the lipiodal in the cisterna magna and sit the patient upright for roentgen-ray examination.

I think the most interesting case was that of the abscess as brought out by Dr. Cazenavette. Only a small number of such cases have been reported in the literature. In the last issue of the *Journal of the A. M. A.* Dr. McDonald of Minneapolis reported one such case. Of course

it is an unusual disease in which one case is considered sufficiently important to report in such a journal as that of the A. M. A. and I think this case should be added to the few we have on record. I thank you.

Dr. A. A. Herold (Shreveport): With permission of Dr. Kerlin and Dr. Caldwell, I had occasion to see the young man referred to in the paper. I saw him on behalf of an insurance company, in connection with the total disability benefit. He was deeply grateful to Dr. Kerlin and Dr. Caldwell for having saved his life, but was disappointed that he had that persisting paralysis.

Two interesting points came to my mind in connection with that case; one is what determined that metastasis from the furuncle? It must have been some strain or trauma that weakened that point on vertebrae. I could not get that quite clearly from his history. The other question is, has he a total and permanent disability, from the insurance standpoint? I reported to the company as I found him. He was a bank clerk by occupation, he still has the use of his mental faculties and his upper extremities, no use of his lower extremities, and the question was whether his is a total and permanent disability from the insurance standpoint; or inasmuch as he can still be a clerk and be rolled around, hasn't he still some capacity for work?

Dr. Chaille Jamison (New Orleans): I understand that cauda equina phenomena is brought out far better by the use of water than the ordinary mercury manometer in general use in estimating pressures on the spinal fluid. I would like to ask Dr. Kerlin if he can give me any information, is the water phenomena necessary, and is it done?

Dr. C. S. Holbrook: There are one or two points I wish to stress. One is for an early diagnosis, after complete paralysis has taken place, little benefit is going to be brought about by removing the tumor. If these patients are to be greatly helped, they should be operated on early. We frequently see these patients after bladder and rectum have been thrown out of commission, after they are completely paralyzed from some level down, and then there is little or no chance of anything like an adequate improvement or recovery. Some slight improvement may take place depending upon how much destruction has taken place; but to wait and delay operating until these absolutely positive signs are present, is losing a great deal of valuable time.

We have recently seen several tumors that illustrate the various points brought out, and on was last week, a man we could not get to bed because lying down increased his pain to such an extent that it was almost impossible to keep him in the hospital, he felt so much better being up. Dr. Kerlin made the statement, and I do not believe he meant in all cases that the pain was localized at the site of the tumor. The pain quite frequently is at the distribution of the nerves involved and no focal pains at all, however tumor of the lower spine generally gives pain in the region of the lesion.

Dr. W. J. Otis (New Orleans): There is more attached to Dr. Kerlin's paper which is "do not treat all back-aches and pains as an old-fashioned back-ache." Any prolonged pain in the lumbosacral area with saddle hypersthenia and anesthesia, plus bilateral sciatica over any length of time should be investigated thoroughly from a neuropsychiatric standpoint, always keeping in mind involvement of the cauda equina or area above this. Contact of these cases aid much in preventing disabilities which follow.

Dr. D. L. Kerlin, Shreveport, (closing): I certainly appreciate the discussion by the doctors of my paper, and in conclusion, there is one question I will answer. Dr. Herold broached the subject of whether or not there was any trauma in producing the initial symptoms of this condition. There was none. He absolutely gave no history of any trouble, and the condition came out of a clear sky, you might say.

In answer to Dr. Jamison's question as to whether or not there is any advantage in using the water in doing the test, I do not think there is any advantage. We advocate the use of water because it is very simply done. Personally, I think the test with the spinal manometer is just as good, and if you have the spinal manometer it will give you the evidence that you desire. I thank you.

ADMIRAL GRAYSON HEADS GORGAS MEMORIAL.—Formally accepting the presidency of the Gorgas Memorial Institute which was recently tendered to him at the annual meeting of the Board of Directors, held in Boston, Rear Admiral Cary T. Grayson announced that it would be his purpose to maintain the field operations of the organization and to expand its publicity features as far as funds will permit.

ANALYSIS OF THE HISTORY IN THE DIAGNOSIS OF HYPERCHLORHYDRIA.*

OSCAR W. BETHEA, M. D.,

NEW ORLEANS.

The diagnosis of hyperchlorhydria has assumed greater importance in consideration of the present view that it is largely responsible for precipitating attacks of migraine and other forms of headache, and that it is an important factor in initiating and perpetuating peptic ulcer.

In investigating diseases of the stomach, there are several avenues that may lead to information of value. These are, the analysis of the history of the case, the physical examination, the roentgen-ray examination, the laboratory investigation, and the therapeutic test. These are all of value, and it is advisable that the first four be employed in every instance. It has seemed to me, however, that the analysis of the history has not been sufficiently emphasized by teachers and by writers upon this subject. It often gives more information than can be obtained from any other source, and sometimes may supply all the data that is actually essential. It is not intended here to discourage the effort at thorough investigation, but it occasionally happens that complete laboratory facilities or the roentgen-ray are not available, except with considerable inconvenience.

I began the practice of medicine with the expectation of doing repeated gastric analyses, and having a complete roentgen-ray study on all patients who presented themselves with gastric symptoms. My interest in other phases of investigation was stimulated by my experience with two of the earliest patients that presented themselves. The first of these patients walked into my office, where I was sitting alone and lonesome. She was a nice appearing individual, and a decidedly pleasing prospect to a young doctor to whom any type of

patient was a rare vision. I began talking the history and among the first questions, asked if she had had a gastric analysis. She replied that she had been to several doctors and they all wanted to wash out her stomach; that she had not been back to any of them, but had finally decided to come to me. I am somewhat ashamed to say that, so far as I am concerned, this good lady's stomach contents have not been analyzed to this day! She did, however, make an uneventful recovery, the treatment being based upon what data I could gather without risk of causing her to seek further for advice. Soon after this, another stomach patient fell to my lot. He was a man in the early forties. He refused a gastric analysis, but did consent to a roentgen-ray study. I received a report, prompted by all the assurance of the radiologists of those days, giving a positive diagnosis of gastric carcinoma. On the strength of this, I got the man with his family and as gently as I could, broke to them the distressing news. I demanded an immediate operation as the only possible hope of benefit. They asked for a short time to consider the matter, and the next day telephoned that he had turned to Christian Science! I still see this man walking the streets, stronger and healthier, it seems to me, each year. I am quite sure that in the First Church of Christ Science at Boston, there are complete records of a Mr. R. of New Orleans, who was absolutely proven to be in the last stages of cancer of the stomach and given up to die by a great city physician (even me) and who was completely and permanently cured by the beneficent and healing influence of Eddyism!

The following plan of history analysis has been used in my hospital services, and in teaching my classes for some years. It should be remembered that few cases are entirely typical, but bearing in mind the following factors in taking the history of a suspected case of hyperchlorhydria may aid much in establishing a diagnosis:

*Read before the South Mississippi Medical Society, Sept. 13, 1928.

Course of the Disease: The process may last for many years, and usually shows periods of comparative or complete comfort. This often enables us to exclude carcinoma.

Gain or Loss of Weight: When a well-nourished, full-blooded individual walks into my office and complains of stomach trouble I instinctively think of hyperchlorhydria. The tendency is to an increase in weight, this is in contra-distinction to hypochlorhydria and carcinoma, in which the tendency is to loss of weight. We must remember that in hyperchlorhydria there is an excessive amount of acid, and often of all the gastric secretions. We may expect, therefore, as a rule, rapid gastric digestion and thorough assimilation. Not only is there a rapid emptying of the stomach, but this gives rise to an early hunger reflex, therefore, these patients have a good appetite and many have learned that the frequent taking of food tends to comfort. It is not unusual to find cases where there has been an actual loss of weight, but a careful investigation usually reveals the fact that this is a result of efforts at treatment where the diet has been arbitrarily curtailed.

Pain vs. Discomfort: In hyperchlorhydria there is usually a definite pain that is often described as burning, cutting, or stabbing in character. This is in contra-distinction to hypochlorhydria in which there is only a dull discomfort, or a sense of weight or fullness. This pain of excessive acidity is usually in the epigastric region, or may be described as a burning streak that follows the course of the esophagus. It is not unusual to have a patient exactly map out the course of the esophagus in showing the location of the discomfort.

Time of Onset of Pain: In hyperchlorhydria the pain is usually the result of the acid gastric juice coming into contact with the mucous membrane. It therefore develops as the stomach empties, the average time being about two hours after meals, depending upon the character and amount of

the food taken. If the food has been of such a character as to favor the formation of acid, the pain may be more intense. The patient may be awakened by the pain during the night, or it may be present upon awaking in the morning. It may be precipitated by missing a meal. This, of course, is in contra-distinction to the discomfort of hypochlorhydria, which results from the presence in the stomach of food that is not being properly digested, the discomfort developing soon after meals and subsiding as the stomach empties.

Duration of Pain: In hyperchlorhydria the pain may last until food (or some alkali) is taken into the stomach. In hypochlorhydria the comfort lasts till food is taken into the stomach, and discomfort is present only while food remains in the viscus.

What Causes Pain: Pain may be precipitated by the emptying of the stomach after a meal, by missing a meal, or by food material that in itself proves an irritant. This is in contra-distinction to the discomfort of hypochlorhydria.

What Relieves Pain: Pain is usually relieved by the taking of bland food, often a drink of cold water will sufficiently dilute the acid to give comparative relief. Vomiting of the acid material will usually give temporary relief. Most patients soon learn that alkalies such as sodium bicarbonate, or some of the proprietary remedies will give relief. This, of course, results from the neutralization of the acid present.

Eating of Acids: Patients having hyperchlorhydria will seldom eat pickles, vinegar dressings, lemons, or other acid material. They either avoid these, knowing that they cause pain, or they unconsciously omit them from their diet, probably being robbed of a desire for such foods through the protective processes of nature. This is in contra-distinction to hypochlorhydria where the desire for these articles of diet is sometimes marked.

Eating of Sweets: This does not give as reliable information as the matter of acids

but many of these patients are conscious of the fact that certain sweets may precipitate pain, and others seem to lose their desire for such foods, as has been described in the preceding paragraph.

Eructations: In hyperchlorhydria there is a tendency to the eructation of acid fluid. This is often distinctly uncomfortable, causing irritation of the esophagus, and sometimes producing distinct discomfort in the pharynx and mouth; considerable irritation may sometimes be observed by inspecting the area visible. These eructations usually occur about two or three hours after meals. In hypochlorhydria the tendency is for the regurgitation of more or less unchanged food; this does not seem to cause material discomfort.

Headache: This is one of the most valuable findings in establishing a diagnosis in the patient's under consideration. Not only that, but the proper interpretation of this headache often leads to results in treatment that are quite spectacular. The headache may range anywhere from a simple dull pain to the severest type of migraine. Dr. Thompson in his "Clinical Medicine" stated that, in his opinion, about twenty-five per cent of all attacks of migraine were precipitated by hyperchlorhydria. My experience leads me to place it at more than fifty per cent. The headache of excessive acidity develops several hours after meals. The patient may be awakened by it during the night, may have it upon awakening in the morning, or it may develop about ten or eleven o'clock in the forenoon, or three or four o'clock in the afternoon. It may be precipitated by missing a meal. It is often associated with nausea, and sometimes with vomiting. It may be relieved by the taking of food, or alkalies, or it may persist for many hours, or even for several days. I believe that in making an etiological diagnosis of a chronic tendency to headache that hyperchlorhydria must always be considered as a possible cause.

Last, but not least, we must search for information looking toward the known fac-

tors favoring the development of excessive gastric acidity. Among these should be mentioned: Chronic appendiceal involvement, chronic gall-bladder disease, and faulty habits of eating.

A careful evaluation of the data obtained by a history, as here suggested will, at least, enable us to better interpret the other findings resulting from a complete routine investigation.

COCCOGENIC INFECTIONS

T. A. MAXWELL, M. D.,

NEW ORLEANS.

The term cocccogenic infection is used to cover lesions due to the ordinary streptococcus and staphylococcus which normally inhabit the skin and which do not produce any lesions as long as the integument is intact. There are two main classifications of this condition as usually observed:

(a) Comprising the skin lesions caused solely by these organisms, classed under the general term, impetiginous lesions; (b) impetiginous lesions engrafted on a primary condition such as in scabies, generally spoken of as secondary infections.

There are no skin lesions, which, at some time or another, will not become secondarily infected due to irritants applied externally or to the scratching of the lesions by the patients themselves as a result of either an itching or burning sensation so common in skin diseases.

A local lesion that is presented for examination may generally be covered with crusts, a manifestation of inflammation with exudation. These crusts may be situated in certain areas the location of which suggests the diagnosis of some particular skin condition as scabies or lues.

Upon examining the crusts, it is often all that can be seen and as far as can be gone in the diagnosis except in such exceptional cases as the ruptured crusts of pustular lues. In questionable cases if a saturated solution of boracic acid is applied on the crusts for several hours a day or if the crusts are very numerous, use is

made of the boracic acid bath, in many instances these crusts will be easily removed and found to be the results of a superficial coccogenic infection. The case is thus cleared up in a few days and the patient is cured. In this class are the cases of common sores, as the laity call them, which recur every summer and make the patient look most unsightly, especially when the major part of the lesions are situated on the arms and legs. After removal of the crusts with the boracic acid pack sterilize the field further through an application of ointment of ammoniated mercury, 5 per cent in adults, and in children a smaller percentages, even as low as one-half of 1 per cent in babies a couple of months old. Sterilizing the lesion in older children and adults with a 75 per cent silver nitrate solution works very well.

Another class of cases presents crusts on different parts of the body. In some instances, as in scabies, the crusts are found on the areas which are frequented by the *Acarus*. The concomitant lesions, as the vesicles in the wings of the fingers and burrows, make clear the diagnosis of scabies with a secondary infection. In this condition treat the scabies before expecting to cure the patient.

Again, cases present themselves with a large crusted lesion on the face that has

persisted for some time. Very often, due to the longevity of the lesions, the crust has a pseudo rupial appearance and the diagnosis of syphilis is made. So far, in such a case, the crust alone is observed, which simulates lues, because of its rupial character. But if the patient is ordered a boracic acid pack and returns in a few days, the crust will be practically removed. The lesion itself will stand out for real examination as to its contour, its wall and base. I do not believe that crusts should be forcibly removed when we have at our command an agent which does it in a more humane manner.

I have had several such cases in my practice similar to those I mentioned above. When the crusts were removed the diagnosis of blastomycosis was easily made, illustrating the fact that the ordinary coccogenic infection may mask a serious condition while many serious looking lesions are due to coccogenic infection alone.

In closing I wish to state that there can be no damage done by the use of saturated solution of boracic acid while a great deal of good often accrues. In five years time I have seen only one patient in whom a saturated solution of boracic acid, caused a dermatitis.

REVIEWS

SURGICAL DISEASES OF BILIARY SYSTEM*

NEW ORLEANS.

EARL GARSIDE, M. D.,†

Many recent advances in our knowledge of biliary diseases have resulted from newer conceptions of physiology. The experimental data given to us by such physi-

ologists as Whitaker, Boyden, Mann, Rous, and others has elucidated many obscure phenomena of the biliary system. These advances have caused us not only, in a great measure, to change our surgical procedures but also to change our conception of many fundamentals which we embody in our teaching. There are many normal functions of the biliary system which are not clearly understood. Recent investigations are giving an insight into probable causes of early abnormal changes, the recognition of which is most important..

*Presented before the Surgical Faculty of Tulane University, November 19, 1928.

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EMBRYOLOGY.

A brief consideration of the development of the biliary system lays a foundation for a more comprehensive understanding of the anatomy and physiology and for a better conception of surgical diseases as recognized clinically.

The liver develops from a hollow outgrowth or diverticulum on the ventral surface of the duodenal portion of the fore-gut. This diverticulum is lined with endoderm and grows into a mass of mesodermal tissue—the transverse septum. Strands of cells called trabeculae soon enclose the vessels of the vascular network in the septum. The trabeculae becomes hollowed out, forming bile capillaries, which empty into the proximal portion of the original hollow diverticulum, from which the bile ducts are formed. The gall bladder first appears as a solid bud on the common duct, and soon enlarges and becomes hollow. The development of the pancreas is closely related to the development of the biliary system in that the ventral portion appears as a diverticulum from the primitive bile duct and forms a portion of the head of the pancreas and uncinate process. The duct of this ventral portion maintains its communication with the bile duct and becomes the main pancreatic duct, while the duct of the dorsal portion of the pancreas forms the inactive, and often obliterated, accessory pancreatic duct.

ANATOMY AND PHYSIOLOGY.

The liver receives both venous and arterial blood, the former under very low pressure from the capacious portal vein and the latter under very high tension from the small hepatic artery. As these two spread out into the intricate capillary network, they are very intimately related with the liver cells. Krogh⁽¹⁾ considers that the endothelium of the hepatic capillaries is a syncytium with numerous nuclei but without defined cell borders, as in embryonal capillaries. The liver cells are directly bathed by blood and not by lymph as are cells elsewhere in the body. The blood drains away from the liver by way of the

hepatic veins. This flow is diminished 60 per cent by obstructing the hepatic artery. The hepatic arterial flow may be altered by vaso-constriction, but the portal vein flow is dependent on changes occurring at either end of the distribution of the vessel, that is, changes in the liver itself or in the intestines, the latter being the more important, but both are influenced by splanchnic dilatation.

The unit of the liver is the hepatic cell, and this complex work-shop is capable of a multiplicity of activities. Among the better understood functions of the liver perhaps the most important is that of sugar metabolism. However, it is commonly known that serious hepatic disease may occur without disturbance of carbohydrate metabolism. Mann et al.⁽²⁾ states that carbohydrate metabolism seems to be complete and normal in the dehepatized animal, as is evidenced by utilization of glycogen and glucose without the formation of any recognizable abnormal products. Glucose in proportionately larger amounts must, however, be administered after removal of the liver, since the carbohydrates normally formed from amino acids and protein metabolism are not available. It is interesting to note that Mann⁽²⁾ found that muscle glycogen does not disappear in the dehepatized dog, indicating that the sugar that reaches the blood comes only from the glycogen of the liver. Therefore, it would appear that the concentration of sugar in the blood is regulated by the amount released into the general circulation by the liver after it reconverts glycogen into sugar. Normally this concentration is so uniform that we may include it in the group of physiological constants along with the temperature, the pulse, the blood pressure, etc.

Deaminization of amino-acids depends directly on the liver as shown by Mann.⁽²⁾ He made observations on 50 dogs surviving removal of the liver from 8 to 30 hours. The formation of urea ceased immediately upon removal of the liver, and when amino-acids were injected the entire amount was recovered unchanged. These observations

seem conclusively to demonstrate another very important function of the liver.

The role of the liver in fat metabolism is not as yet very clearly understood. It is demonstrable, however, that as the glycogen disappears from the liver, the liver accumulates fat. MacLeod⁽³⁾ thinks that the liver converts the fat molecule into a state such that its potential energy can be transformed into dynamic energy.

Likewise the function of the cholesterol metabolism of the liver is not well understood. The liver is a known detoxifying organ, the proteins arriving from the portal circulation being detoxified by it. Fibrinogen is also known to be formed in the liver.

Of more clinical interest, however, than the metabolic functions of the liver, are its excretory functions. This is demonstrated by the fact that most hepatic tests which aim to measure its metabolic capacity have been discontinued and more reliable tests have been instituted which are based on a measurement of the liver's excretory function, referring, of course, to such tests as van den Bergh and excretion of various dyes, such as phenolsulphonaphthalein.

Though clinically interesting, bile pigment formation is perhaps one of the least important functions of the liver. Bilirubin is known to be added to the blood as it traverses the liver, but the same is known to occur in the spleen and bone marrow also. It is definite that the formation of bilirubin depends upon the activity of the reticulo-endothelial system, one part of which, of course, is found in the liver. It is interesting to note also that jaundice develops rapidly after complete removal of the liver. The source of the bile pigment can be determined by the van den Bergh test for bilirubin concentration in the blood, in that, in the blood going to the liver color can be produced only by addition of both the diazo-reagent and alcohol, whereas in bile itself the color appears immediately upon addition of the diazo-reagent alone.

Investigation is now being made by Aldrich and Green on a method of measuring bile salt excretion. This should prove of more clinical value than the estimation of bile pigment excretion.

The gall bladder is a pear-shaped, distensible pouch hanging in a dependent position by attachments to the under surface of the right lobe of the liver. It normally holds approximately 30 c.c. of bile, and is never seen completely collapsed or empty. At early morning operations on the abdomen the gall bladder is usually found well filled (the fasting condition). It has a rich blood supply from the cystic artery and from many small vessels which are in its attachment to the liver.

The cystic artery is normally a branch of the right hepatic artery, and, it should be remembered, passes downward and forward, and lies on the medial side of the cystic duct and neck of the gall bladder. The wall of the gall bladder consists of a mucous membrane, a sub-mucous layer, in which are large and active lymphatics, a muscularis, with elastic and connective tissue, and a serosa, beneath which is a sparse arrangement of lymphatic vessels. The lymphatic supply has a free communication with the liver through the gall bladder attachment and with nodes found in the hilus of the liver, at the juncture of cystic and common ducts, along the common duct, and around the head of the pancreas and first portion of the duodenum.

The known functions of the gall bladder are concerned with the concentration and storage of bile, the secretion of mucus, and the regulation of pressure in the duct system.

There can be no doubt that much more bile is absorbed through the wall of the gall bladder than is emptied through the cystic duct. Halpert⁽⁴⁾ and Sweet⁽⁵⁾ even go so far as to say that the primary function of the gall bladder is bile absorption and that bile once having reached the gall bladder never leaves it through the cystic

duct. Boyden⁽⁶⁾, Silverman and Menville⁽⁷⁾, Winkelstein and Aschner⁽⁸⁾, Mann and Higgins,⁽⁹⁾ however, have demonstrated that the gall bladder does empty through the cystic duct, though there is some variation in their respective opinions as to the mechanism by which the emptying is accomplished. Boyden⁽⁶⁾ considers that the gall bladder is a passive agent and that the active factors are the secretory pressure of the liver, the regulatory action of the sphincter papillae, and intra-abdominal pressure. Winkelstein and Aschner⁽⁸⁾ consider that the respiratory mechanism is the "motor of the gall bladder," while Mann, in his work on fish, guinea pigs, and dogs, and Whitaker,⁽¹⁰⁾ using the cholecystographic method of Graham and Cole, and Hamrick,⁽¹¹⁾ employing roentgen-ray observation of the gall bladder filled with iodized oil, report ample evidence that the gall bladder empties chiefly through the activity of its intrinsic muscular contractions. Westphal⁽¹²⁾ lays emphasis on the action of the sphincter of the common duct and calls attention to its sympathetic stimulation and vagus inhibition. This antagonistic action causes contractions, which empty periodic spurts of bile into the duodenum.

The quantity of bile leaving the gall bladder by the cystic duct in the course of twenty-four hours is very small, and represents only about one-tenth (Hammerstein, one-twentieth) of the bile formed by the liver.

The bile capillaries form the intra-acinous small bile-ducts which can be traced to the capsule of Glisson. The branches arising in the right and left lobes of the liver respectively are separated until they form the hepatic duct. No important anastomosis between the right and left lobes could be demonstrated by Counsellor and McIndoe.⁽¹³⁾

The hepatic duct is the excretory duct of the bile coming from the liver. It contains circular muscular fibers, mucus secreting glands, and pouch-like sacculi.

These sacculi often dilate after removal of the gall bladder and even take on some of the absorptive functions of the gall bladder itself. The cystic duct branches off from the hepatic duct, and usually runs parallel with it, but at times may form a spiral around the hepatic duct. It is three to four cms. in length, is poor in muscle fibers, and is rich in lymphatic glands. Its rich nerve supply accounts for the severe and widely radiating pains in affections of the cystic duct. At the point where the cystic duct enters the gall bladder its mucous membrane is thrown into folds—the valves of Heister—which may at times be so thick as to narrow the lumen and even cause intermittent obstruction (Schmieden⁽¹⁴⁾). Lutkens⁽¹⁵⁾ holds that there is a sphincteric action of the cystic duct, any spasm of which causes obstruction.

The common duct is nine to ten centimeters long, and its diameter is that of an ordinary lead pencil. One-third of the duct lies above the duodenum and two-thirds behind it. In about 90 per cent of cases the duct passes behind the head of the pancreas before it enters the duodenum. At the lowermost portion is smooth musculature, forming the sphincter of the common duct, which was described by Oddi in 1887. Westphal,⁽¹²⁾ Whitaker⁽¹⁰⁾ and others have shown that constriction of this sphincter aids in filling the gall bladder by increasing the pressure in the ducts, and that a relaxation of the sphincter must occur before emptying of the gall bladder is possible. No doubt our future knowledge of the flow of bile, stone formation, and bile duct physiology will result from a more complete understanding of innervation. All of the bile ducts secrete some mucus which dilutes the bile somewhat. An excessive accumulation of this mucus may cause partial obstruction and symptoms of biliary colic.

There is at least one lymph node on each the common, the cystic, and the hepatic ducts. They have a definite size in health, and the surgeon has learned to recognize their enlargement in disease. Their size

rather consistently depends on the degree of infection present.

Anomalies of the liver and gall bladder are rare. The presence of two livers in a human being is the rarest known anomaly. Morgagni reported one such case; the gall bladder was absent. The next rarest anomaly is the congenital absence of the gall bladder and all ducts. The condition is not incompatible with life, as is evidenced by the fact that the average duration of life was seventy days in the 13 cases reported in the literature, one of these patients living 216 days. The next rarest anomaly is the absence of the gall bladder, cystic, and common ducts. Bower⁽³¹⁾ reviews 14 such cases previously reported, and reports one such case of his own. This condition is, of course, compatible with life, two cases having lived 60 years and their deaths then being due to causes to which the anomaly was not contributory. There are 31 cases reported in the literature of absence of gall bladder and cystic duct. Willis⁽¹⁶⁾ reports a case of congenital dilatation of the common duct, and reviews 59 cases previously reported. This cystic dilatation of the duct reported by Willis⁽¹⁶⁾ contained 400 cc. of bile and was discovered during a laparotomy for chronic appendicitis. According to McWhorter⁽¹⁷⁾ the correct diagnosis has not been made in any case prior to operation. Approximately 170 cases of congenital atresia and stenosis of the bile ducts have been reported (Ladd⁽¹⁸⁾). Moynihan⁽¹⁹⁾ feels that they are due to intra-uterine obliterative cholangitis. Other theories of causation are: 1. Congenital syphilis; 2. fetal peritonitis; 3. congenital malformations.

Of more clinical interest are the anomalies of the hepatic and cystic arteries. Flint⁽²⁰⁾ reports that in 21 per cent of cases the right hepatic artery may arise from the superior mesenteric artery. In 3.5 per cent there are two right hepatic arteries. The cystic artery arises from the right hepatic artery in all but 2 per cent of cases. In 15 per cent of cases there is an accessory sys-

tic artery. The cystic duct may join the common duct at any point between the usual position and the ampulla of Vater, or may even open into the duodenum separately. There is only one type of accessory bile duct—it is an accessory right hepatic duct and occurs in 14.5 per cent of cases.

JAUNDICE.

“Jaundice, or icterus, is a condition characterized by coloration of the skin, mucous membranes, and fluids of the body by bile pigment” (Osler). Jaundice is, of course, a symptom and not a disease. It is, however, so closely associated with diseases of all three components of the biliary system that it deserves consideration under a separate heading.

If we accept McNee's⁽²¹⁾ classification and exclude that rare and little understood type of icterus—familial jaundice—there are only three important types which we must consider clinically. Two of these types,—toxic and hæmolytic jaundice—are of lesser importance to the surgeon. McVicar⁽²²⁾ prefers to classify jaundice as: 1. hemolytic; 2. intrahepatic; 3. obstruction within ducts; 4. obstruction by compression.

The type of jaundice with which the surgeon must deal is obstructive jaundice. Its most common causes are:

1. common duct stones;
2. empyema of the gall bladder, with cholangitis;
3. stricture of common duct;
4. tumors of the head of the pancreas (usually carcinoma, rarely inflammatory).

The chief responsibility is to differentiate between surgical and non-surgical types of jaundice. General functional impairment of the body and tissues of jaundiced patients is evidenced by loss of weight and strength, the tendency to diarrhea, and a prolonged coagulation time of the blood. However, these common general manifestations of jaundice are not specific, and a differentiation must be made on a few significant points, *i. e.* 1. pain; 2. access of bile to the intestinal tract;

3. serum pigment as determined by van den Bergh reaction. The presence or absence of pain is of the greatest importance in diagnosis. In hemolytic and intrahepatic jaundice and in obstructive jaundice, due to pressure on the common duct from without, pain is typically absent. Cases of stone in the duct rarely occur without characteristic colic.

The greatest difficulty in diagnosis is encountered in painless jaundice. In higher grades of bilirubinemia the hemolytic type can easily be excluded and the differentiation must then be made between intrahepatic jaundice and compression of the common duct by an extrinsic tumor. Such a tumor is usually a pancreatic tumor and almost invariably a malignant one. Painless jaundice, therefore, in patients under 35 years of age would be evidence against pancreatic tumor. Above that age complete absence of bile in the duodenum or stools would be suggestive of carcinoma of the head of the pancreas or, less commonly, of the ampula of Vater. A solitary cholesterol stone may also produce painless jaundice and should always be considered as a possibility.

However, after a period of careful investigation during which time appropriate pre-operative treatment has been instituted, if there still exists a doubt as to the type and cause of jaundice, the patient should be subjected to an exploratory operation.

The measurement of the bile pigment in the blood serum by the method of van den Bergh is a reliable index of bilirubin concentration. It is sensitive and rises or falls before changes in the tint of the skin and sclera can be appreciated. Its differentiation of the source of bile pigment is likewise helpful in making a diagnosis. Determination of the icterus index is not difficult and when repeated frequently becomes a valuable adjunct to prognosis as well as diagnosis. As has already been stated, tests of liver metabolic function are disappointing in their results, and are of little diagnostic value in jaundice.

The patient with jaundice which can be classified as of the surgical type should, of course, be advised that operation is the only rational procedure. The surgeon should, however, be aware that surgery on jaundiced patients is replete with difficulties. The greatest hazard is tendency to hemorrhage.

Walters⁽²³⁾ has added materially to the possibility of successful operation on these patients by introducing the use of calcium chloride in the preoperative preparation of jaundiced cases. The dose recommended by Walters is 5 cc. of a 10 per cent solution given daily by intravenous injection for three days prior to operation, care being taken to get none of the solution outside the vein, as slough is very likely to follow such an accident. The very definite reduction of the mortality rate at the Mayo Clinic following introduction of calcium quickly installed it in universal clinical use. It is recognized as valuable by most surgeons, but some do not place as much dependence on it as do the surgeons at the Mayo Clinic. Judd, for example, considers that blood transfusion will only be necessary in a small percentage of cases, and these are usually extreme cases which continue to ooze blood post-operatively. Percy,⁽²⁴⁾ Crile,⁽²⁵⁾ Lahey,⁽²⁶⁾ and others, however, feel that though calcium chloride be used pre-operatively, surgery should not be undertaken on jaundiced patients without giving one or more blood transfusions. Recently Wagensteen⁽²⁷⁾ has shown that although calcium chloride is a reliable agent for reducing delayed coagulability, there are, attendant upon obstructive jaundice, changes in the blood vessels, as well as the blood itself, and also there is destruction of liver tissue and consequent diminution of liver function. None of these abnormal changes are materially affected by calcium therapy, and one should therefore, not lose sight of the known value of intravenous glucose in hepatic insufficiency, and the effectiveness of transfusion in hemorrhage.

The blood coagulation time and serum pigment concentration are the best guides as to the optimal time for operation. In a review of operative cases over a period of five years at the Mayo Clinic, Walters⁽²³⁾ found that 70 per cent of deaths from hemorrhage occurred in patients with a clotting time of more than nine minutes. Likewise disaster is imminent in operations undertaken during the time the serum bilirubin is increasing.

Equally important as other pre-operative preparatory measures is the administration of large amounts of fluids and the giving of a diet rich in carbohydrates. When anorexia or nausea is marked glucose solution and other fluids may have to be administered through a duodenal tube, or by proctoclysis, and even sometimes by intravenous infusion or hypodermoclysis.

The occurrence of post-operative complications in jaundiced patients will, of course, be minimized by proper pre-operative treatment. The most frequent and most dreaded complication is hemorrhage. It is relatively rare to see any sudden copious hemorrhage if the technic of the operative procedure has been properly executed. What usually occurs in these cases is a continuous oozing. The surgeon should brook no delay in employing measures to bring it under control. No doubt one of the best procedures at our command is blood transfusion.

A pallid, apathetic patient excreting increasing amounts of pale, thin bile suggests post-operative hepatic insufficiency. The urinary output and blood urea usually remain normal. Intravenous injections of 5 per cent to 10 per cent glucose have been of considerable value in the treatment of this type of complication. Since slow administration of relatively large amounts of glucose solution is indicated, the intravenous drip as suggested by Matas⁽²⁸⁾ will prove very useful. In cases in which a "T" tube or catheter has been placed in the common duct, McArthur⁽²⁹⁾ prefers to introduce the glucose directly into the intestinal tract by way of the tube.

The diseases of the liver which the surgeon is called upon to attend are not numerous. By far the greater number of hepatic dysfunctions are treated medically; however, many are not amenable to treatment of any kind.

Injuries of the liver may be due to blows, crushes or falls, or to gunshot or stab wounds. Subcutaneous wounds are of three kinds:

1. Rupture of hepatic tissue combined with rupture of the capsule;
2. Separation of the capsule with subcapsular haematoma;
3. Central ruptures, which often give rise to separate or united haematomata which may develop into cysts or abscesses.

Open wounds may be of any conceivable complexity, character, or extent. Wounds may be single or multiple. The right lobe is injured six times as frequently as the left.

The two serious features in all wounds of the liver are hemorrhage and infection—the former is the more grave.

Treatment: In open wounds there can be no question as to the immediate necessity for operation. Other organs may be injured, foreign bodies may be within the wound, bleeding may still be going on, and contamination may be such as to require free opening and adequate cleansing.

In cases of subcutaneous injury the need for operation is by no means so imperative. Recovery may follow conservative treatment, but an unsuspected tear may be found at exploratory operation. If there are signs of shock, fluid in the abdomen, and muscular rigidity, an immediate operation should be advised. Determination of the percentage of hemoglobin and number of erythrocytes may be of some diagnostic aid. Also leucocytosis is a rather constant early finding in abdominal hemorrhage.

Operation: The liver may be exposed (Moynihan⁽³⁰⁾):

1. Through an anterior incision opening the peritoneal cavity as in exposure of the gall bladder.

2. Through an anterior incision along the 7th or 8th ribs, which later are resected. The pleural cavity is traversed and the diaphragm incised.

3. Same as (2) except posterior incision.

4. Same posterior approach as (3), but the pleura is lifted upwards out of the way and pleural cavity is not traversed.

The operation should aim to arrest hemorrhage and close as far as possible, the wound in the liver. Hemorrhage may be arrested by suture, by ligation of the larger vessels, by packing with gauze, and by actual cautery. Closure of the wound is difficult, due to the extreme friability of hepatic tissue. By the use of a thick suture upon a Kousnetzoff liver needle (or some modification of it, such as Kader or Mikulicz) the edges of the wound may be approximated. If this fails, packing with gauze is the only possible satisfactory method. The gauze should be packed into the wound with sufficient firmness to arrest bleeding.

The cirrheses of the liver are only occasionally subjected to surgery and then the results are often discouragingly indifferent or even deleterious.

Excluding the purely medical disease, syphilitic cirrhosis and the rare capsular cirrhosis, or perihepatitis, we may consider only two types as being of surgical interest, namely portal cirrhosis and biliary cirrhosis.

Laennec first described portal cirrhosis, although the effect of toxic substances going to the liver through the portal system had long been recognized. Alcohol had even then been accused of being the chief offender, and is only now losing some of this distinction. The one common feature of all types of cirrhosis is the increase in the connective tissue.

Briefly stated, virtual strangulation of the portal vein constitutes the reason for surgical intervention in portal cirrhosis. This intrahepatic blockage of the portal circulation imposes a tremendous vascular burden upon the liver. Observation of the physiological compensation for this, viz., the greatly increased collateral circulation, drew attention to possible surgical procedures.

1. Talma-Morison method to form new venous channels connecting the systemic and portal systems. This consists in scarifying the surfaces of the liver and spleen and sewing the omentum to the parietal peritoneum of the anterior abdominal wall.

2. Removal of the spleen. It is computed that in normal conditions one-seventh of the portal blood is derived from the spleen, but in cirrhosis, when the spleen is enlarged, it would impose upon the portal system an amount of blood far in excess of normal. Splenectomy would, therefore, reduce the volume of portal blood appreciably. The Talma-Morison operation can, of course, be performed concomitantly.

3. Eck's fistula—anastomosis between the portal vein and the inferior vena cava. Moynihan⁽³⁰⁾ says, "This is a procedure of which I have no experience, nor, I think, am I likely to have any."

Abdominal paracentesis is a palliative surgical procedure used repeatedly in the later stages of cirrhosis to relieve ascites—which almost invariably occurs. Attention should be called to the frequent occurrence of hemorrhage from varices, especially those of the oesophagus. McIndoe⁽³²⁾ reports this as the most frequent cause of death in portal cirrhosis.

In biliary cirrhosis the connective tissue deposits surround, not the venous radicles but the origins of the minutest bile passages within the liver. This type of cirrhosis is considered as originating in infections of the biliary ducts, which in the usual case arises in the gall bladder and especially in the infected and obstructed

common duct. Infection does not readily occur unless there is obstruction. The treatment of biliary cirrhosis of the average type, therefore, depends on the establishment and maintenance of thorough drainage of the biliary ducts. Another type of biliary cirrhosis may occur without infection, it being secondary to splenomegaly. W. J. Mayo⁽³³⁾ recommends splenectomy in this type of case.

Infections of the liver are of two types, non-suppurative and suppurative. Non-suppurative hepatitis is of no surgical interest *per se*. It, however, has a very definite bearing on the common surgical condition, cholecystitis, and may give rise to still another interesting condition, cirrhosis.

Heyd⁽³⁴⁾ feels that there is some degree of secondary hepatitis associated with every case of cholecystitis. Conversely cholecystitis may develop from a primary hepatitis, as has been shown by Graham.⁽³⁵⁾ Ample reason for this inter-relationship between the liver and gall bladder is seen by considering their lymphatic connections, which have been mentioned previously.

Suppurative hepatitis, or liver abscess, exists in three forms, traumatic, pyemic, and tropical (DaCosta⁽³⁶⁾). Osler⁽³⁷⁾ adds two other types: 1. inflammation of the bile passages, and 2. foreign bodies and parasites.

Traumatic abscess usually results from an open wound of the liver, but may be caused by a subcutaneous contusion. In the former the infecting organisms are carried in by the injuring agent, or the abscess may form around some foreign body, as a wad of clothing or a bullet. The abscess following a contusion usually is the result of infection of a hematoma by blood or bile borne bacteria. Recovery usually follows incision and drainage of these traumatic abscesses.

Pyemic abscesses are usually multiple but may fuse into one large solitary abscess. These are usually due to portal

pyemia as from suppurative appendicitis, or to lymphatic infection along the extra-hepatic bile ducts. Infrequently they follow systemic disease, as measles or typhoid fever, and sometimes occur as extension from a perforated gastric ulcer. Since the pus from these abscesses is rarely, if ever, sterile, aspiration is not only dangerous but logically can do no good. The only method of treatment that should be employed is incision and drainage.

Tropical abscess of the liver is rare in temperate climates, but is extremely common in the tropics. Its usual antecedent in either climate is amoebic dysentery. Passive congestion of the liver is common among white inhabitants of the tropics, especially is it true of those who abuse alcohol. The amoeba, which has a widespread distribution, therefore, finds in the liver a nutritious soil for a fruitful infection.

In 70 per cent of cases the abscess is solitary⁽³⁰⁾ and in 15 per cent there are two large abscesses. In the remaining 15 per cent abscesses are multiple, and the dysentery is active, while with solitary abscess there are often no symptoms of dysentery. The right lobe alone is affected in 71 per cent of cases; the left alone in 16 per cent.

Signs and symptoms: Onset is usually slow. The patient suffers from languor, lassitude, irritability, and depression. He has headache, foul tongue, anorexia, and loss of weight. There may be slight diarrhea, but absence of symptoms of dysentery is not uncommon. Later there is chilliness and fever, especially in the evening, and soon thereafter a definite remittent fever becomes established. Fulness appears in the epigastrium, and liver dullness increases. There is tenderness over the right lobe of the liver. Jaundice is uncommon, but may occur. Leucocytosis is present. The finding of amoebae in the pus should not be expected, as they are usually only found in the scrapings from the walls of the abscess cavity. Skiagrams show the

dome of the diaphragm raised on the right side. Pannett⁽³⁸⁾ thinks exploratory aspiration is "safe" if, 1. the right lobe only is explored; 2. the needle is not of large caliber; 3. the right lobe is explored posteriorly and never through the anterior abdominal wall; 4. punctures are made, first, mid-axillary 9th intercostal space and then 8th space, and, second, posterior spacular line 10th intercostal space, then 9th space, but never a large number of promiscuous punctures; and 5. if one is always prepared to evacuate the abscess by open incision. Maes⁽³⁹⁾ has emphasized the use of an exploring needle of sufficient length to reach even the dome of the liver.

TREATMENT.

1. Conservative method consists of aspiration of abscess and injection of quinin or emetin into the cavity. Pannett⁽³⁸⁾ recommends this method in easily accessible cases. Talbot⁽⁴⁰⁾ recorded successful aspiration of 11 cases. After Rodgers⁽⁴¹⁾ demonstrated that the pus in these abscesses was generally sterile, aspiration gained in favor and is now the accepted method of those whose experience is largest. It is necessary to completely evacuate the abscess at one aspiration. Perhaps emetine, or other amoebicidal substances, need not be injected into the cavity for healing appears to take place without them. However, emetine should be used subcutaneously. Indeed, success of this conservative method largely depends upon intensive treatment with emetine before aspiration of the abscess.⁽⁴¹⁾

2. Open operation should be done when aspiration has failed or the aspirated pus is found to contain pyogenic organisms and in all abscesses of the left lobe or any abscess bulging anteriorly. The operation may be accomplished through an abdominal incision, special care being taken to wall off the liver from the peritoneal cavity by gauze packs or by suturing the capsule to the parietal peritoneum. We should not be careless because we may feel that the pus is probably sterile. "No surgeon is entitled to assume that dirty work of any kind is

harmless" (Moynihan). After a large area of liver is thus exposed in the bottom of the wound, the abscess may be opened, a cautery or small scalpel being used and the tract then being enlarged with the finger. The cavity may be packed tightly with gauze or a large drainage tube inserted. In general, the method by which the abscess is approached should be the most direct route possible. Resection of ribs may be necessary in order to reach the abscess, but the pleura should not be opened unless such a procedure is made imperative by the abscess having reached a high level, in which event the traversed pleural tract must be securely closed off from the general thoracic cavity before the abscess is opened.

Hydatid or echinococcus cysts of the liver are common in Iceland and Australia, but rare elsewhere. The favorite site is the right lobe. The signs or symptoms may be few in cases with small cysts or suggestive of a large tumor when the cysts are of greater size. Hydatid fremitus is a typical finding. Rupture may occur. Suppuration may likewise become a complication.

The cyst is surrounded by a fibrinous capsule composed of compressed liver tissue. The contents are clear, opalescent, non-albuminous fluid, scolices and hooklets.

Operative treatment offers the only means of relief. Aspiration and injection has been abandoned. "For cysts which are suppurating the method to be chosen is that of incision and drainage in one or in two stages: in one stage if adhesions are present between the liver and the abdominal wall; in two stages if no adhesions are present. If the cyst lies at or near the surface of the liver the method to be preferred is that of enucleation" (Moynihan⁽³⁰⁾).

Malignant tumors of the liver are rarely primary, being secondary in 95 per cent of cases (Boyd⁽⁴²⁾). Primary carcinomata of the liver compose .5 per cent of all cancers (Ewing⁽⁴³⁾). (In the negro, carcinoma of

the liver is said to be somewhat more common⁽⁴⁴⁾.) In 85 per cent of the cases of primary malignancy there is an associated cirrhosis (Ewing⁽⁴³⁾).

Primary carcinomata may be of two varieties, the one arising from the epithelium of the bile ducts, the other from liver cells. The former is more common. It is a columnar-celled adenocarcinoma, and is usually multiple. The liver-cell variety studs the liver with nodules so diffusely that the picture may resemble cirrhosis. Deep jaundice is a constant feature.

Sarcoma of the liver in the primary form is even rarer than carcinoma. By clinical history it cannot be distinguished from carcinoma, except that it may occur as a congenital or very early tumor in infants and children. However, it is also found in old age. Ewing⁽⁴³⁾ mentions seven collected cases.

Secondary malignancies of the liver are not infrequent, occurring 45 times more often than primary growths, and are chiefly metastases from neoplasms of organs drained by the portal vein. Another tumor which occasionally involves the liver, but less frequently than carcinoma, is hemangioma. It usually occurs in younger individuals, and is often associated with hemangiomata elsewhere in the body. As concerns surgery, Moynihan⁽³⁰⁾ records that he has "once removed a large haemangioma, twice has removed secondary growths which seemed to be solitary and lying near the edge of the liver, and which were easily accessible, and on five occasions has removed large sections of the liver with a gall-bladder that was obviously malignant. In all the malignant cases recurrence has taken place, the most delayed being first noticed four years and eight months after operation."

Syphilis of the liver, as elsewhere in the body, imitates with surprising accuracy the manifestations of other diseases. It is of surgical importance only because it may be accompanied by jaundice and symptoms of tumor. It may be congenital or ac-

quired. The congenital type may cause cirrhosis, spots of fibrosis and miliary, or (occasionally) large gummata. Acquired syphilis may cause hepatic disease in the secondary and the tertiary stages. In the secondary stage there may be temporary jaundice, due to catarrh of the smaller intrahepatic bile ducts caused by inflammatory infiltration. Marked scarring may follow such involvement. The tertiary lesions are most common. Gummata are the rule, and occur most frequently on the anterior surface of the right lobe (DaCosta⁽³⁶⁾). A gumma adjacent to the common or the hepatic duct causes painless jaundice, and is often confused with cancer. As a gumma breaks down toxic or suppurative cholangitis may occur, accompanied by fever, chills, jaundice, and colicky pain. The history together with the blood and ascitic fluid Wassermann reaction suggests the diagnosis. Appropriate specific therapy will usually leave little doubt as to the presence of syphilitic infection.

(TO BE CONTINUED)

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COMMENTS ON TREATMENT OF HEART DISEASE.—J. B. Herrick, says: The great majority of heart cases are treated along these lines: Rest to permit recovery of muscular tone and to prevent overstrain of an injured organ. Digitalis to slow conductivity and heart rate and thus secure more rest, together with more vigorous ventricular contraction and more normal output of blood with each beat. Opium to relieve pain, induce sleep and lessen nerve strain. A laxative for purposes of elimination. There are occasional misapplications of the general principles. Consider the subject of rest. Fixed rules cannot and should not be laid down. There seems to be a wide difference in the practice of different physicians. Some prescribe too little rest for acute inflammation of the heart and for serious breakdown of a chronically diseased heart and, on the other hand, too much rest for milder grades of cardiac insufficiency and especially for cardiac disease with no evidence of present or impending breakdown. In general, an acute carditis demands rest until the temperature and pulse are normal and until moderate exercise does not cause the temperature to rise, the pulse to show undue irritability, or dyspnea to make its appearance. The patient with failing heart, whether from primary chronic valvular or myocardial lesion, needs rest long after his more urgent symptoms have disappeared. A too early resumption of work will promptly cause another breakdown. However, many physicians need to have removed the bugbear fear of exertion. It is not a new thought that the heart muscle after the subsidence of the acuter symptoms may, like skeletal muscles, need exercise; that what is needed in many instances is not less, but more exercise. Patients must be told that a rheumatic heart or a leaky valve does not necessarily imply a life of inactivity and idleness. Individualization is the key to this feature

of treatment. There is a too strong tendency to impose on the profession arbitrary rules as to the use of digitalis, rules that are in part contradicted by the every day results of bedside practice. The fact that so many physicians successfully prescribe digitalis without thought of cat units, accurate body weight, or rate of elimination; that they use it in conditions other than auricular fibrillation; that they do not refrain in an urgent situation from giving it subcutaneously, intramuscularly or intravenously; that they very rarely feel compelled to give the massive dose in order to the prompt effect, all this is a protest—an unconscious one, to be sure—against the too dogmatic directions that have been given publicity, directions that are perhaps too much based on laboratory experiment, with too little control by extensive bedside observation. The greatest fault, however, is the giving digitalis without any indication for its use except the diagnosis of heart disease—and this diagnosis sometimes wrong. Ignorance, haste, carelessness, indifference, too great reliance on the roentgen-ray or electrocardiograph will explain many cases. But often, Herrick believes, it is to be explained by the fact that the physician has heard from a teacher, or he has read in the medical journal that the early diagnosis of heart disease is the great desideratum. But he has not read of the errors in the diagnosis of heart disease. The mistake of diagnosing wrongly may lead to direful consequences, unnecessary fear, lives of inactivity, enormous economic loss. Again, when there is some real cardiac disturbance the greatest care is necessary not to convey a wrong impression. The impression of a disease is destined to advance relentlessly toward an early death. There is a danger not fully recognized that the movement for periodic health examinations will, unless most carefully watched, make people too introspective, too apprehensive. —J. A. M. A., 91:1761, 1928.

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CHRONIC APPENDICITIS.

There is a growing appreciation that the operations that have been performed in the past for so called chronic inflammation of the appendix do not in many cases relieve the symptoms for which the appendix was held culpable. This is shown particularly by the studies that have been made by surgeons from the results of a followup of patients who have been operated upon for many irregular and vague symptoms which have been thought due to a chronically diseased appendix. Carnett believes that many of these patients are suffering from intercostal neuralgia rather than inflammation of the appendix. It

has been shown that 40 per cent of these patients are not improved by operation. Furthermore, such a well known surgeon as Hugh Cabot has demonstrated that among 300 patients unsuccessfully operated on for chronic appendicitis, 11.6 per cent were made definitely worse as a result of the operation. Incidentally the mortality rate of operations on the appendix has increased 31 per cent in the past two decades.

Surgeons have written most of the articles that have appeared in current medical literature and some few of the more enlightened ones have preached against the promiscuous removal of the appendix as a result of a diagnosis which is based upon a poke in the side and a history of indigestion. The medical man, as well as the surgeon, is now protesting against the wholesale removal of an organ, which while not in any sense vital or necessary to human economy, nevertheless is tucked away in a particularly sensitive portion of the anatomy. Bettmann* writes that the diagnosis of chronic appendicitis is one made with considerable difficulty, and it take close study and slow decision to arrive at such a conclusion. He calls particular attention to the fact that pathologists disagree as to what is really chronic appendicitis; that roentgenologists differ widely among themselves as to the roentgenologic diagnosis, one saying that a non-filling appendix is normal, another that it is a sign of disease, still others insisting upon tenderness as an important feature of the disease; and that surgeons are unwilling to study their patients thoroughly. He concludes that it is only after long and conscientious observation of the patient should he be submitted to surgical practices, procedures which might possibly cause death, which may never relieve the condition and which may ultimately make the patient worse than he was before the operation.

*Bettmann, Henry W.: Chronic appendicitis from the viewpoint of an internist. *Ann. Int. Med.*, 2: 509, 1928.

PREVENTION OF INFLUENZA.

The prevention of influenza is, of course, "a consummation devoutly to be wished", in spite of the fact that it seems to call for a program of a most ambitious nature. Regardless of the size of the task, we are now face to face with the problem and there is no way for the medical profession to escape its responsibility, even though it were desirous of doing so. Without going into the bacteriology of this condition, regarding which too little is known, it may not be amiss to remind ourselves that we are dealing with an acute inflammation of the nares and pharynx accompanied by a systemic toxemia and that while the disease itself is not of a serious nature, the many complications are.

Whenever an epidemic of influenza begins to manifest itself, we find the lay press, as well as the professional, filled with a little of treatment and a great deal about predisposing causes. One will say that it is due to cold air blowing on you, another that it is due to an irritation in the atmosphere caused by insufficient ventilation, others speak of the food one eats playing a part.

This discussion is largely due to the fact that the terminology of the pathology of the upper respiratory tract is very inexact. The patient with a chronic inflammation of some of the accessory sinuses may have an exacerbation of his trouble following exposure but nobody would have us believe for one moment that this was the cause of the trouble. We know that some people have a metabolic rhinitis following dietetic indiscretion but there is no reason to confuse this condition with those of an infectious nature. Neither should those fleeting irritations due to chemical and mechanical agencies be confused with acute infections of the upper respiratory passages.

When we are dealing with other acute infectious diseases, such as scarlatina, typhoid fever, malaria, or diphtheria, we are not inclined to waste a great deal of

time on what factors lower a person's resistance or what promote ones susceptibility, but with influenza we find the advice to avoid infection and to treat infection so befogged and overclouded by a mass of superstitions about the part played by exposure and ventilation and food that the main point is lost sight of.

By training ourselves better to differentiate between the various pathological entities to be found in the upper respiratory tract, we shall the sooner be able to separate the wheat from the chaff. As long as a metabolic rhinitis, a discharge from an infected sinus, a sneeze due to dust are called "colds", there will continue to be confusion in the profession as well as in the laity.

Surely the rhinolaryngologists have able enough pathologists in their ranks to provide a nosology that should go far to clear the situation.

When the medical mind definitely differentiate the acute infections that attack the upper respiratory passages from the other inflammations of various origins, it will naturally cease to bother about the effect of cold air and bad air and bad water and excess of food. The profession will then begin to treat these infections as they have learned to treat acute infections in other parts of the body.

Gorgas made it possible for the jungle to be cleared so that Goethals could dig the canal. If we shall be enabled to clear the confusion by getting a better nosology we shall make almost as much progress as we shall when we finally learn the name of the organism that causes influenza.

Let us not think so much of predisposing causes and think more of the immediate cause.

Let us be as careful in preventing the spread of infection for influenza as we are with such diseases as diphtheria and scarlatina.

If we can keep our patients isolated until they no longer discharge the organism from the nose and throat, we shall cease to have epidemics of influenza.

PRESIDENT FENNER.

The new President of the Orleans Parish Medical Society, Erasmus Darwin Fenner, M. D., who was installed as President of the organization on Monday, January 14, was born in New Orleans in 1868. He received the B. A. Degree from Tulane University in 1888, and after spending a year at the University of Virginia, entered the Medical School of Tulane to graduate in 1892. During the last two years of his medical course he was associated with the Charity Hospital as an interne. Dr. Fenner has served on the Visiting Staff of this great hospital from 1892 to the present date, and for the period of 1898 to 1905 was first Assistant House Surgeon. He has been connected with Tulane Medical School since 1895. During the first ten years of his attachment with the University he lectured on the diseases of children. From 1904 until 1907 he was Professor of Surgical Diseases of Children, and for the next twenty years ably and successfully conducted the Department of Orthopedics and Surgical Diseases of Children, becoming Emeritus Professor of Orthopedics in 1927.

The new president of the Parish Society spent nearly two years in the Army. One of the earliest men called to duty from New Orleans, he reported August 31, 1917, as Orthopedic Surgeon of Base Hospital Number 24. After spending some months in this country, he went overseas on February 15, 1918, saw active service in France and was honorably discharged in this country April 24, 1919.

Dr. Fenner has been always an energetic worker in the Orleans Parish Medi-

cal Society. In addition to his membership in this organization, he is a member of the Louisiana State Medical Society, American Medical Association, American College of Surgeons, as well as a member of the Louisiana Governing Committee of the Gorgas Memorial. Dr. Fenner was happily married on April 18, 1920, to Sadie Cameron McDonald.

The Orleans Parish Medical Society is to be congratulated upon its selection of Dr. Fenner as President. A man of delightful and charming personality, of force and character, a scholar and a sincere student of literature, he brings to the presidential chair attributes of initiative, dignity, and absolute integrity, which will do much to advance the interest of the organization and to make him a splendid presiding officer.

**CAPITAL INVESTMENT IN
MEDICINE.**

Elsewhere in this issue is a copy of a letter sent to Dr. T. M. Dye, Secretary of the Mississippi State Medical Association, and to Dr. P. T. Talbot, Secretary-Treasurer of the Louisiana State Medical Society, by the Director of Study, R. G. Leland, M. D. This notice concerns a questionnaire sent out by the American Medical Association for the purpose of securing data that may throw some light on the capital investment of the individual physician. This information should be of the utmost value and interest to all physicians and it is to be hoped that all will co-operate with the American Medical Association in this undertaking.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL MEDICAL STAFF MEETING.

MEETING DECEMBER 18, 1928

Dr. Chaille Jamison presented the clinical case history of a case of myelogenous leukemia in a colored male, and an autopsy was performed on the case, the meeting having adjourned to the autopsy room for this purpose. Dr. D'Aunoy conducted the autopsy and described the pathological findings. The case was typical in all respects, and was of added interest because it had not been benefitted by the use of radium.

Dr. Herrmann demonstrated the action of the heart valves in the case, by means of water pressure with in the heart.

WILLARD R. WIRTH, M. D.

STAFF MEETING VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL.

DECEMBER 10, 1928 SPECIAL

CASE REPORTS.

Carcinoma of the Stomach; Sleeve Resection.—

DR. A. STREET

The patient, a white male, aged 69 years, a widower, by occupation storekeeper, came to clinic August 4, complaining of pain in epigastrium which radiates over entire abdomen. He has been having similar attacks for thirty years. Between attacks he eats well and food agrees with him. Attacks are accompanied by vomiting but no hematemesis. The bowels are constipated; at time of examination had not moved but slightly for six days. There was no marked loss of weight and no fever. He gets up twice at night to void urine; has had bladder operation some years ago. Family history has no bearing on

the case. The examination disclosed a fairly well nourished, not feeble, male. Pulse, 60; respiration, 18; systolic blood pressure, 150. The teeth show pyorrhea and caries; while the tongue is dry and rough, and the palate rough with mosaic arrangement of rectangles with red centers; tonsils atrophied. Liver edge slightly low and hard; not tender. Physical examination otherwise not remarkable.

The roentgenogram examination showed multiple small gall stones and cylindrical narrowing of distal two-thirds of stomach.

The leukocyte and differential leukocyte counts were normal; no malaria; Wassermann and Kahn tests negative.

An exploratory laparotomy was advised but refused at the time. The patient was re-admitted to hospital October 23. He had had hamatemesis a few weeks after first examination.

Operation: Under ether and gas anesthesia, a high incision slightly to right of median line was made. The gall bladder was pale, thickened, and contained several stones. Stomach was narrow, resembling "leather bottle" in shape but not in appearance. On posterior wall, along greater curvature, was extensive growth so far to left that operability was questionable. However, clamps were placed behind growth and distal to it and trans-gastric-resection accomplished with end to end anastomosis. Gall bladder was not disturbed. Wound closed with silk worm twist drain of wall of abdomen.

The microscopic examination showed adenocarcinoma (group IV); ulceration; acute and much chronic inflammation; much fibrosis; growth apparently limited to mucosa and sub-mucosa. Node from lesser omentum showed chronic inflammation but no cancer.

Patient has had an uneventful convalescence and was discharged from hospital November 16.

ENDEMIC TYPHUS FEVER IN THE UNITED STATES.—Recent work by officers of the U. S. Public Health Service in connection with studies of endemic typhus fever in the United States is of much interest.

The data which are available from morbidity reports, from the literature, and from field investigations give only a bare outline of the occurrence of this typhus-like disease in the United States. So far as information is available, it seems to indicate that the disease is rather sharply limited to the Atlantic seaboard and the near-by Piedmont section, going as far north as Boston.

It is present in nearly all of the seaports from New York southward and has attained widest distribution in Alabama, Georgia, and Florida. On the Gulf coast, while it has been reported from Tampa, Pensacola, Mobile, Galveston, and Houston, there is at present no information regarding its occurrence in Mississippi or in Louisiana. The lower Rio Grande Valley from Laredo to Merced constitutes an important focus. On the Pacific coast only Los Angeles has reported a considerable number of cases. While an occasional case has been reported from the interior of the country, that section has been for the most part strikingly free.—U. S. Public Health Service.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the past month there was a joint meeting of the incoming and outgoing Boards of Directors, and the Society held its Annual Installation Meeting and a joint meeting with the New Orleans Gynecological and Obstetrical Society.

At the Installation Meeting the program was as follows:

Annual Report of Secretary:

Dr. H. Theodore Simon.

Annual Report of Treasurer:

Dr. John A. Lanford.

Annual Reprt of Librarian:

Dr. Daniel N. Silverman.

Annual Reports of Special and Standing Committees.

Annual Report of Going-Out President:

Dr. J. Birney Guthrie.

Address of Incoming President:

Dr. Erasmus Darwin Fenner.

"Judging the Quick and the Dead."

By Judge Wm. W. Westerfield, Annual Orator.

Installation of the following Officers:

President—Dr. Erasmus Darwin Fenner.

First Vice-President—Dr. C. Grenes Cole.

Second Vice-President—Dr. Frederick L. Fenno.

Third Vice-President—Dr. Adolph Jacobs.

Secretary—Dr. H. Theodore Simon.

Treasurer—Dr. John A. Lanford.

Librarian—Dr. Daniel N. Silverman.

Additional Members Board of Directors—Dr. P. Graffagnino, Dr. J. Birney Guthrie, Dr. Wm. D. Phillips.

At the joint meeting with the New Orleans Gynecological and Obstetrical Society, held January 28, the program was as follows:

The Obstetrical Patient.

a. Prenatal Care.

b. Management of Labor. (Motion pictures)

1. Normal Labor.

2. Forceps.

3. Version and Breech Extraction.

4. Cervical Type, Cesarean Section.

By: Dr. Carl Henry Davis, Milwaukee, Wisconsin, Chairman, Section on Obstetrics, Gynecology and Abdominal Surgery, A. M. A.

Dr. Suzanne Schaefer was elected to Active Membership, and Dr. S. L. Tiblier was elected to Associate Membership.

REPORT OF TREASURER.

Actual Book Balance 11/30/28	\$1,960.31
Receipts during December	1,973.77
Receipts for insurance	1,052.65
	<hr/>
	\$4,986.73
Expenditures	\$3,746.79
	<hr/>

Actual Book Balance: 12/31/28 \$1,239.94

REPORT OF LIBRARIAN.

Fifty-eight books have been added to the Library during December. Of these 6 were acquired by subscription, 43 by gift and 9 from the New Orleans Medical and Surgical Journal. This brings the number of volumes in the Library on December 31st, 1928, to 13,790. A notation of new titles of recent date is appended herewith.

NEW BOOKS.

Osler—Modern Medicine. v. 6 and Index.

U. S. Public Health Service—Annual Report. 1928.

Phillips—Diseases of the Ear, Nose and Throat. 1928.

Joslin—Treatment of Diabetes Mellitus. 1928.

Gould—Pocket Medical Dictionary. 1928.

Keyes—Urology. 1928.

Speed—Fractures and Dislocations. 1928.

Hall—Ultra-Violet Rays. 1928.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

PARISH MEDICAL SOCIETY OFFICERS FOR 1929.

The following Parish Medical Societies have elected officers for 1929 as follows:

Ouachita Parish:

President—Dr. P. L. Perot, Monroe.
Vice-President—Dr. J. T. French, Monroe.
Secretary-Treasurer—Dr. E. R. Yancey, Monroe.

LaSalle Parish:

President—Dr. C. W. Patterson, Tullos.
Vice-President—Dr. J. P. Durham, Trout.
Secretary-Treasurer—Dr. W. V. Taylor, Olla.
Delegate—Dr. W. V. Taylor, Olla.
Alternate—Dr. John M. Kittrell, Good Pine.

Claiborne Parish:

President—Dr. M. J. Rivenbark, Haynesville.
Vice-President—Dr. E. O. Bond, Homer.
Secretary-Treasurer—Dr. E. B. Middleton, Homer.
Delegate—Dr. J. W. Featherstone, Homer.
Alternate—Dr. C. O. Wolff, Haynesville.

Richland Parish:

President—Dr. G. E. McConnell, Manghum.
Vice-President—Dr. Nash Collins, Delhi.
Secretary-Treasurer—Dr. J. C. Sartor, Rayville.

Avoyelles Parish:

President—Dr. Emil Regard, Mansura.
Vice-President—Dr. R. G. Ducote, Bordelonville.
Secretary-Treasurer—Dr. Kirby A. Roy, Mansura.
Delegate—Dr. S. J. Couvillon, Moreauville.

Iberia Parish:

President—Dr. Guy A. Shaw, Loreauville.
Vice-President—Dr. Geo. J. Sabatier, New Iberia.
Secretary-Treasurer—Dr. P. A. Boykin, Jeanerette.
Delegate—Dr. Guy A. Shaw, Loreauville.
Alternate—Dr. P. A. LeBourgeois, New Iberia.

St. Landry Parish:

President—Dr. Lionel J. Bienvenu, Opelousas.
Vice-President—Dr. J. N. Brown, Washington.
Secretary-Treasurer—Dr. Wilson W. Knowlton, Opelousas.
Delegates—Dr. Geo. Beridon and Dr. S. B. Wolff, Opelousas.
Alternates—Dr. Oscar Bienvenu, Opelousas, and Dr. R. G. Hawkins, Palmetto.

THE BIRTHDAY EXERCISES OF THE PRESBYTERIAN HOSPITAL.

On January 23, 1929, at 3 P. M., under the Auspices of the Women's Auxiliary, the Presbyterian Hospital of New Orleans celebrated with appropriate and fitting exercises, its birthday, in completion of twenty-one years of continuous service.

Many interesting features were involved in this celebration. The Class of 1929, of the Training School for Nurses, received their diplomas at the hands of Dr. J. C. Barr, President of the Presbyterian Hospital. The annual address to the graduating class was delivered by Dr. James Madison Batchelor, Surgeon in Chief of the Presbyterian Hospital.

An interesting address was delivered by Dr. John N. Lindner, President of the Clinical Society of the Presbyterian Hospital.

A prayer was offered by the Rev. Dr. F. H. Ford, pastor of the Community Presbyterian Church, Jefferson Terrace, New Orleans, and a reading from scripture was given by the Rev. L. E. Koenig, Pastor of the Andrew Jackson Presbyterian Church, New Orleans. The Hospital had as its distinguished and honored guests, the Rev. Dr. Lewis S. Mudge, the Stated Clerk of the General Assembly, and Dr. James H. Speer, of the General Council of the General Assembly of the Presbyterian Church, U. S. A., who brought a message of closer fellowship and encouragement from the constituency of this great Church.

In addressing the assembly, Dr. Barr, President of the Hospital, sketched an outline of the institution from its humble beginning twenty-one years ago, through its trials and difficulties, to its present plant, ranking the Presbyterian Hospital of New Orleans with the great institutions of the country. Particular mention was made of the recent dedication of the James M. Batchelor Building, the first unit of the proposed New Presbyterian Hospital. This building, designed for the use of the medical profession, classically simple in the beauty of its structure, will be followed in the immediate future by the erection of the second unit of the proposed group of buildings, on the Hospital's property, facing Baronne Street.

Appreciation was expressed to those of the profession who had given so liberally of their time and skill to the upbuilding of the institution, and to the many friends who by their co-operation have assisted the Hospital in its progress.

A delightful tea was served after the exercises, affording the guests refreshment, and an opportunity to meet each other and further enjoy the occasion.

A LETTER OF FORTY YEARS AGO.

New Orleans, May 26, 1888.

To His Excellency, James Jeffreys, Lieutenant Governor of Louisiana and President of the Senate, and to the Hon. S. P. Henry, Speaker of the House of Representatives:

.... In the annual report for 1887, the Administrators of the Charity Hospital, through their presiding officer and also through their house-surgeon, strenuously urge that the restriction (none but resident Louisianians be admitted as resident students) has proved detrimental to the interests of the hospital and the best care of the sick.

Also in 1887, the State Medical Society, the only organized representative of the reputable physicians of Louisiana, adopted resolutions earnestly protesting against this restriction as "unwise and illiberal." Surely it is inconsistent with the humane and noble creed of the universal brotherhood of man; a creed which rejects limitation by State lines, which has ever found sustenance in the deeds as well as in the heart of the medical profession, and which, if it merits any observance, deserves it especially in all matters which concern the sick and the afflicted.

Many of the physicians of this State have enjoyed, many will hereafter enjoy, the privileges of hospitals in other States, and even in foreign lands, as freely as if citizens thereof. To these particularly, but also to all citizens of liberal culture, it is a just cause for keen mortification that Louisiana should have arrayed itself by an invidious restriction against the comity of other States and nations, and thus invited these to retaliation.

Our State has heretofore been distinguished for notable liberality in all things appertaining to the sick, the dead, and the medical profession; never until 1886 had its Legislature imposed any illiberal restrictions on the government of the Charity Hospital. Its management was left, where it is wisest it always should be left, in the hands of the administrators selected because of their superior knowledge of hospital affairs and their special fitness to fulfill all the duties of their position.

Hence, we respectfully, but most earnestly, petition the present General Assembly to follow, in this matter, the example of every one of its predecessors *except the last one*, and to leave the

internal management of the Charity Hospital to its administrators, designed by law and specially chosen by the Governor and the Senate for this very purpose.

Yours very respectfully,

STANFORD E. CHAILLE, M. D.

WILLEY DENIS, A. M., PH.D.

On Wednesday, January 9, 1929, the very sad death of Dr. Denis occurred after a long illness of more than a year's duration. Although not a physician, Dr. Denis for many years had come in intimate contact with the medical profession. She taught the Harvard medical students for some years, while the later years of her life had been spent in instruction of the Tulane medical students.

The loss of Dr. Denis is a severe one, not only to Tulane Medical School, but also to the City of New Orleans, the State of Louisiana and the medical profession throughout the country. One of the great scientists in the United States, Dr. Denis had done tremendous amount of valuable research work which has benefitted all medicine; and each and every medical man is indebted to her in part for many of the laboratory methods that are now in daily use. Dr. Denis stood in the forefront of science, and science will feel deeply her loss. She was undoubtedly one of the great woman scholars of the world. Certainly her accomplishments, her name and her reputation were greater than that of any woman scientist of the South.

There is a splendid opening for a young physician at Tallulah, Louisiana. Any one interested please communicate with Mr. R. M. Almond, Tallulah, La.

UNITED STATES PUBLIC HEALTH SERVICE.

A. A. Surgeon J. G. Wooley is directed to proceed from Carville, La., to Kansa City, Mo., to take into custody patient and accompany him to Carville, La.

VITAL STATISTICS.

During the year 1927 in the State of Louisiana there were 23,875 deaths from all causes, exclusive of still births, which contrasts with 24,230 in 1926. The rate per one thousand population was 12.3. The death rate among the white race for 1927 was 9.5, with a total of 11,878 deaths, and the colored 17.4, the total number of deaths being 11,997. This rate per one thousand population

compares very favorably with that of other southern states. The rate in the registration states from the South shows that the rate was lower in Alabama and North Carolina. In other southern states it was higher than that of Louisiana.

DEATHS REPORTED FROM INFLUENZA AND PNEUMONIA WEEK ENDING

DECEMBER 29, 1928.

In the City of New Orleans 53 deaths were reported from influenza and 44 from pneumonia, as compared with 37 the week previously from influenza and 22 from pneumonia.

During the week ending January 5, deaths from pneumonia in New Orleans were 44, from influenza 84. This explains the high death rate, namely: 48.1 during this particular week in the city.

THE DEATH RATE OF MOTHERS FROM CHILD BIRTH IN 1927.

In 1927, 420 women died from puerperal cause. Two hundred and one of these were white, 219 were colored. One hundred and sixty-four of these deaths were caused from puerperal septicemia, 76 among the white and 88 in the colored race. The death rate from puerperal cause per one thousand live births in 1927 was 9.1. These figures compare unfavorably with other states. In Kentucky the rate was 4.9, North Carolina 6.6, Tennessee 7.1, Virginia 6.2, Missouri 6.7, to mention a few of the southern states. In Wisconsin the rate was 5.3, Minnesota 4.4, Maine 8., New Jersey 6.3, picking at random a few of the other states in the country.

HEALTH OF NEW ORLEANS.

The United States Weekly Health Index for the year 1928 shows that in New Orleans the total deaths during the year were 8,147, of which 4,848 were white and 3,299 were colored. During the year 1927 there were 7,942 deaths, with the death rate of 18.7. This is a high death rate, higher than nearly any other city in the United States; but in explanation of these high figures it must be taken into consideration the fact that a large number of people are brought into the Charity Hospital from the surrounding towns and cities, many of which are many miles distant and they are brought only when in extremis. As a result of this practice a large number of deaths occur in the Charity Hospital of people who do not belong to the City of New Orleans, swelling very materially the death rate of the city.

DISPOSAL OF FARM SEWAGE.

Farmers' Bulletin No. 1227-F, entitled "Sewage and Sewerage of Farm Home," reissued recently by the United States Department of Agriculture warns against the dangers to human health and to livestock of negligence in properly caring for all forms of farm sewage.

Details and illustrations are given for construction of approved privies, chemical closets and septic tanks. Suggestions are also made for the proper placing of them on farms so they will not drain toward wells. The use of disinfectants and deodorants is also explained.

Proper care of the kitchen sink drainage is urged and illustrations show methods of disposal. The placing and construction of cesspools and grease traps are also discussed. Methods and details of construction are explained and illustrated in such a way as to be understood by homeowners.

Copies of the bulletin may be obtained by application to the Office of Information, United States Department of Agriculture, Washington, D. C.

On December 18, 1928, Dr. Allan C. Eustis, Professor of Clinical Medicine with the Graduate School of Medicine of the Tulane University of Louisiana, addressed the annual meeting of the East Mississippi Medical Society at Meridian, Miss., on "Myocardial Insufficiency; Diagnosis and Treatment."

TO THE MEMBERSHIP.

The work of the special Committees has been assigned, and the arrangements for the Annual Meeting are in full sway. It has been decided to hold the exercises in memory of our deceased members at the opening session on Tuesday, April 9.

The entertainment which will feature the celebration of the Fiftieth Anniversary of the Society will take place Tuesday evening at 8:00 o'clock in the Tip Top Inn of the Roosevelt Hotel. This promises to be a gala affair, and the Committee hopes that the attendance on that occasion will be record breaking. The profession of the State, their friends and the general public are invited to this function. Our President, Dr. Menville, has appointed the following Reception Committee to serve for this occasion, and urges that they all be present: Drs. Wm. Harris, H. Bernadas, Jerome Landry, Amedee Granger, Octaves Cassegrain, C. G. Cole, Wm. D. Phillips, Alton Ochsner, J. H. Musser, Harry Nelson, Louis Levy, J. E. Isaacson, Lucien LeDoux, J. M. Bachelor, Henry Bayon, Jr., all of New Orleans;

S. B. Wolff, Opelousas; J. W. Faulk, Crowley; H. P. St. Martin, Houma; H. C. Dansereau, Labadieville; S. C. Barrow, Shreveport; C. P. Gray, Monroe; G. M. G. Stafford, Alexandria; R. O. Simmons, Alexandria; L. J. Williams, Baton Rouge; Frank Gouaux, Lockport; D. C. Iles, Lake Charles; Chas. Gelbke, Gretna; H. B. Gessner, New Orleans; C. A. Weiss, Baton Rouge; C. C. DeGravelles, Morgan City.

The Committee has not yet decided what kind of entertainment it will have Wednesday evening, April 10, but it will be a stag affair and in keeping with the traditions of the past, and your Committee promises to those who will be present a most enjoyable evening.

We beg to announce that clinics will be arranged for Monday, April 8. These clinics will be of a general nature, and there will be also special clinics under the auspices of the Dermatological Society.

DR. PAUL J. GELPI, Chairman,
Committee on Arrangements.

A NOVEL CATALOGUE.

A recent mail brought to us a Pharmaceutical catalogue which to say the least is striking and unusual. It is the new 1929 list of the Mulford Laboratories and is a radical departure from the usual run of price lists. It employs the modernistic style throughout and taking advantage of photography to reproduce unusual effects, a series of colored inserts has been prepared and used to mark the various divisions of the Mulford line.

Copies may be had by addressing H. K. Mulford Company, Philadelphia, Pa.

Dr. Homer Dupuy and Dr. Lucien A. LeDoux of the Hotel Dieu Staff, New Orleans, attended a recent meeting of the Tri-State Medical Society, which was held in Texarkana, Texas.

LEPROSY IN UNITED STATES.—Hopkins and Denney have made a statistical study of 718 lepers hospitalized over a period of thirty-four years in the Louisiana Leper Home—later the National Leprosarium. Two hundred and fifteen were foreign born and 503 were natives of the United States. The present population of the hospital is 287. Mexico, China, Italy, Greece and the Philippine Islands have furnished one-half of the total foreign born. Most of the lepers came from Louisiana, California, New York, Texas and Florida; 418 came from Louisiana. The incidence of leprosy among the white population of Louisiana is computed as twice that in the negro population. Of the total cases, 11.0 per cent were of the nerve type, 39.1 per cent of the skin type, and 49.9 per cent of the mixed type. Of the total cases, 72.3

Dr. Homer Dupuy read a paper on:

"The Marked Viewpoint of Nasal Sinus Diseases, with Lantern Slides."

Dr. Lucien LeDoux read a paper on:

"The Method of Surgical Treatment of Uterine Displacements."

MEETING OF ST. TAMMANY PARISH MEDICAL SOCIETY.

The annual banquet and meeting for installation of officers was had Thursday night, January 17, at 8:00 P. M., at Behac's, a place of note for its splendid cuisine, at Mandeville. Doctors Gautreaux, Bullock, Buquoi, Young, F. F., Young L. Roland, Maylie, Payne, Griffith, Polk and Singleton answered the roll call. Doctors R. C. Young of Shreveport and Lawrence R. Young, formerly of Rayne, were guests.

Dr. F. F. Young, on relinquishing his chair as President to L. Roland Young, thanked the members for their assistance during his tenure of office and referred to the advances in the various branches of medicine to what it was thirty years ago, and urged all to stand banded together under the banner of organized medicine that all may go well and progress continue.

Dr. Maylie was declared elected at the last meeting as delegate by error, he being already councilor of the Sixth District, and in his stead was elected Dr. J. K. Griffith and Dr. H. D. Bullock alternate.

The banquet was enjoyed by all and the delicious food was served in courses and possessed that flavor unique of Bachac's.

By motion of Dr. F. F. Young the next meeting will be held at Slidell on the second Friday night of February, at 8:00 P. M.

L. ROLAND YOUNG,
Acting Secretary.

per cent were in males and 27.7 per cent in females. The social status of the patients represents a cross-section of the normal populace. The average age at onset of the disease is computed as 30.2 years; the average age on admission to the hospital was 36 years, with an average period of six years prior to admission during which each patient may have been a menace to public health. In a group of 100 Louisiana lepers, hospitalized more than fifteen years ago, it has been disclosed from subsequent records that in sixty-four instances only one leper in the family developed the disease, while in the thirty-six other instances leprosy occurred in eighty-three additional relatives. In some families the disease has invaded certain branches to the point of extermination.—J. A. M. A., 92:191, 1929.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

The annual meeting of the East Mississippi Medical Society, which embraces the counties of Newton, Neshoba, Winston and Lauderdale, was held in the Elks' Club of Meridian, December 18, 1928, when officers for the ensuing year were elected, as follows:

President: T. E. Jarvis, Newton.

Vice-Presidents:

Lauderdale: T. L. Bennett.

Newton: W. S. Polk.

Neshoba: A. L. Majure.

Winston: T. F. Kilpatrick.

Censors:

Lauderdale: H. F. Tatum.

Newton: S. A. Majure.

Neshoba: J. S. Heckman.

Winston: O. F. Parkes.

Delegates:

Lauderdale: S. H. Hairston

Newton: H. McMullen.

Neshoba: C. H. Harrison.

Winston: W. W. Parkes.

Secretary-Treasurer: J. E. Anderson.

Their program was:

1. "Acute Osteomyelitis"—J. S. Speed, Memphis.
2. "Constipation"—James S. McLester, Birmingham.
3. "Surgery of the Infected Joint"—J. T. O'Ferrall, of New Orleans.
4. "Myocardial Insufficiency"—Allan Eustis, New Orleans.
5. "Fractures of the Neck of the Femur"—Samuel R. Benedict, Birmingham.

Dr. W. R. May has assumed charge of the Public Health Unit of Lincoln County with headquarters in Brookhaven.

The Staff meeting of the Vicksburg Sanitarium was held January 10, at which time the following cases were discussed:

1. "Poliomyelitis Occurring in an Adult during the Fourth Month of Pregnancy; Normal Baby Delivered at Term"—Dr. G. M. Street.
2. "Inflammatory Stricture of Sigmoid. Obstruction; Resection"—Dr. A. Street.
3. "Pyloric Stenosis"—Dr. J. A. K. Birchett.
4. "Achyilia Gastrica"—Dr. L. J. Clark.

5. "Influenza"—Dr. Hugh H. Johnston.
6. "Sinusitis in Children"—Dr. Edley H. Jones.
7. Radiographic Studies.
 1. Pulmonary Tuberculosis.
 2. Pott's Disease of Lumbar Spine.
 3. Aneurism of Aorta.
 4. Thoracic and Abdominal Aneurism of Aorta in same patient.
 5. Sarcoma of the Mediastinum (follow-up).
 6. Carcinoma of the Pelvis, Spine, and Femur, Metastatic.

The North-east Mississippi Thirteen Counties Medical Society met in Starkville on December 18, 1928, at which time the following officers were elected for the ensuing year:

President: J. R. Hill, Corinth.

Vice-Presidents:

Alcorn: M. H. McRea.

Calhoun: J. B. Shaw.

Chickasaw: V. B. Philpot.

Clay: F. P. Ivy.

Itawamba: John Senter.

Lee: R. B. Pegram.

Lowndes: C. E. Lehmberg.

Monroe: J. A. Dilworth.

Noxubee: E. M. Murphy.

Oktibehha: F. B. Long.

Pontotoc: Z. A. Dorsey.

Prentiss: R. B. Cunningham.

Tishomingo: K. F. McRae.

Secretary-Treasurer: J. M. Acker, Jr.

Delegates:

Alcorn: C. W. Norwood

Calhoun: W. J. Aycock

Chickasaw: J. W. Williams

Clay: A. K. Naugle

Itawamba: E. B. Nabors

Lee: L. C. Feemster

Lowndes: W. L. Stalworth

Monroe: J. M. Acker, Jr.

Noxubee: A. R. Saunders

Oktibehha: C. B. Mitchell

Pontotoc: R. P. Donaldson

Prentiss: L. L. McDougall

Tishomingo: A. E. Bostick

Alternates:

S. L. Stephenson

E. B. Young

V. B. Philpot

F. P. Ivy

John Senter

L. C. Spenser

J. W. Cox

M. Q. Ewing

C. W. Saulter

C. R. Dabbs

O. F. Carr

W. H. Anderson

C. Croemans

Their program was as follows:

1. "Herpes Zoster Ophthalmica Associated with Acute Parotitis"—Dr. D. E. Staton, Columbus
2. "Perineal and Cervical Repair"—Dr. M. Q. Ewing, Amory

3. "Gastro-Intestinal Disturbances"—Dr. H. G. Rudner, Memphis
4. "Some of Our Professional and Associational Needs"—Dr. W. H. Frizell, Brookhaven
5. "A Paper"—Dr. L. A. Crosby, Aberdeen

During the recent epidemic of influenza in Laurel the following physicians were ill from that disease: Drs. J. S. Gatlin, J. F. Scarborough, T. R. Beech, R. H. Foster and H. S. Tucker.

The South Mississippi Charity Hospital at Laurel has resumed the admission of patients but no visitors have been allowed.

At the last quarterly meeting of the South Mississippi Medical Society held at Laurel on December 13th, the following officers were elected for 1929.

President: Dr. R. H. Foster, Laurel.

1st Vice-President: Dr. H. P. Smith, New Augusta.

2nd Vice-President: Dr. T. R. Beech, Ellisville.

Secretary-Treasurer: Dr. J. H. Newcomb, Richton.

Delegates:

Covington: G. T. Cranford.

Forrest: H. L. McKinnon.

George: R. F. Ratcliff.

Green: M. M. Magee.

Jasper: A. M. Haralson.

Jeff Davis: G. C. Terrell.

Jones: R. H. Cranford.

Lamar: G. D. Mason.

Marion: J. G. Gardner.

Pearl River: R. W. Stewart.

Smith: J. O. Cargile.

Perry: J. E. Green.

Their program was as follows:

1. "Eczema"—Dr. R. W. Hall, Jackson.
2. "Artificial Feeding of Well Babies"—Dr. C. G. Wright, Hattiesburg.
3. "Newer Methods of Treating Syphilis of the Nervous System"—Dr. C. H. Holbrook, New Orleans, La.

The first quarterly meeting of the Homochitto Valley Medical Society was held in Natchez on January 10 with Dr. W. H. H. Lewis in the chair.

Under clinical cases one of polyneuritis probably due to arsenic poisoning was discussed by Dr. R. D. Sessions.

Papers were presented as follows:

1. "Fracture of the Atlas"—Dr. J. S. Ullman.
2. "Ainhum"—Dr. Marcus Beekman.

Dr. B. D. Blackwelder, formerly director of the Public Health United of Holmes County, has moved to Natchez where he has taken charge of the Public Health Unit of Adams County.

The regular monthly meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held jointly with the Central Medical Society at Jackson on January 15. Their program was as follows:

1. "Cancer of the Stomach"—Dr. A. Street.
2. "Paranasal Sinusitis in Children"—Dr. E. H. Jones.
3. "Infections of the Hand"—Dr. S. W. Johnston.

The Inter-State Post Graduate Medical Association of North America announces the preliminary program for the American Spring Assemblies, April 15-May 9, 1929, to include visits to clinics at Rochester, Chicago, Cleveland, Boston, New Haven, New York, Philadelphia, Baltimore and Washington.

The foreign Assemblies are announced for May 18 to July 11, 1929 and will include visits to clinics in London, Glasgow, Edinburgh, Oslo, Stockholm, Upsala, Lund, Copenhagen, Hamburg, Berlin, Frankfurt, and Paris.

Dr. W. B. Peck, Freeport, Illinois, is the managing-director and may be addressed for any information regarding these assemblies.

CAPITAL INVESTMENT IN MEDICINE.

The following letter which was recently received by Dr. Dye should interest every physician in Mississippi.

January 5, 1929.

Dr. T. M. Dye, Secretary,
Mississippi State Medical Association,
Clarksdale, Mississippi.

Dear Doctor Dye:

As you receive this letter, the questionnaires on The Capital Investment in Medicine will be ready to leave the headquarters of the American Medical Association. A very important group, composed of economists, publicists, physicians and others, has undertaken to make an investigation of the cost of medical care, the results of which will be of great importance to medical profession. The American Medical Association has under-

taken to collect information pertaining to the capital investment in medicine and the income from medical practice.

As a part of the work of the above-mentioned group, known as the Committee on the Cost of Medical Care, the American Medical Association is to request more than 25,000 physicians, selected at random, to furnish certain data pertaining to the invested capital involved in physicians' education, intern training, post-graduate courses, office and traveling equipment, office maintenance, medical society affiliations, library maintenance and medical licensure fees.

This, as you will realize, is a survey of the profession, and for the benefit of the profession. The questionnaire is to be anonymous and, therefore, there need be no fear of any embarrassing or undesirable results from the information returned.

You are urged to encourage, among the members of your state society, a serious and thoughtful consideration of this matter to the end that complete and reliable data will be given on the several items. We desire that you suggest, through your medical journal, by news item, editorial and other appropriate means, the importance of this survey and the desirability of universal participation on the part of the physicians who receive the questionnaire.

Yours very sincerely,

R. G. LELAND, M. D.,
Director of Study.

The questionnaire alluded to in the letter calls for information which will tend to show the cost

of medical education and included such expenses of the student, as tuition, special fees, living expenses, medical books, journals and stationery and instruments, car fare and traveling expenses, life insurance premiums and interest on all borrowed principal. Another item covers the cost of the office and other necessary equipment together with the cost of maintenance, as well as the cost of office assistants, medical books, journals, society dues, and expense of traveling to medical society meetings.

It will be noted from the above letter that every physician will not receive one of these blanks but in order to arrive at a cross section of the physicians of the whole country, 25,000 will be selected at random. It is therefore highly important that every physician receiving one of these questionnaires should co-operate by supplying this data promptly.

Dr. Victor Vinnette Wallace of Carrollton, Miss., died of pneumonia at his home on December 23, 1928, and was buried by the Masonic Lodge on December 24th.

Dr. Wallace was born in Carroll County on October 15, 1878. He attended the public schools in this county and was a graduate of the Memphis Medical College of the class of 1908. He served as interne in the City Hospital of Memphis, after which he began practice in Old Salem, Carroll County, Mississippi. In 1919 he moved to Carrollton. He was a member of the Winona District Medical Society.

The Journal wishes to take this occasion to express its sympathy to his bereaved family.

ISOLATION OF PITUITARY HORMONES.—

For his work in an investigation of the ductless glands and particularly in his isolation of pituitary hormones, Dr. Oliver Kamm, director of chemical research of Parke, Davis & Company, manufacturing chemists, has been awarded the \$1000 prize by the American Association for the Advancement of Science for the "most noteworthy contribution to science presented at the annual meeting." The award was announced on January 2 by Dr. Henry Fairfield Osborn, president of the association.

The isolation of two hormones from the posterior lobe of the pituitary gland is held by chemical scientists to be equal in importance to the isolation of insulin and the discovery of adrenalin. Dr. Kamm isolated the alpha and beta hormones of the posterior pituitary after twelve years work in the Parke, Davis Research Laboratories. This, incidentally, is the first time that

anyone has demonstrated that one gland might contain more than one hormone.

The alpha hormone is the so-called oxytocic principle. The beta hormone is the blood-pressure-raising principle. Dr. Kamm also showed definitely that the beta hormone has the power of controlling the excessive output of water. His paper before the American Association for the Advancement of Science showed that it has been a mistake to refer to the so-called "renal activiay" of pituitary extracts.

The beta hormone does not act upon the kidneys, but controls the utilization of water by the individual tissues of the body.

The usefulness of this beta hormone is now under investigation in diseases characterized by excessive loss of water, such as diabetes insipidus, burns, cholera, other infections diseases, and surgical shock.

BOOK REVIEWS

Stedman's Medical Dictionary: By Thomas Lathrop Stedman, A. M., M. D. New York, William Wood & Company. 1928. pp. 1194.

The tenth edition of this standard dictionary appears in exactly the same form as the last few editions. About 500 new medical terms have been added, and a considerable number of obsolete words have been deleted. In addition to these features a table of microparasites has been prepared which will aid very materially those unfamiliar with the new nomenclature of the American Society of Bacteriology.

This dictionary we consider to be the best in the English language. We have used recurring additions since the first one came out in 1911, and we have always been able to find the word we sought, clearly and intelligently defined.

J. H. MUSSER, M. D.

Nutrition: By Walter H. Eddy, Ph.D. Baltimore, Williams & Wilkins. 1928. 237 pp.

This little book will appeal to laymen and students of medicine for whom it is primarily written. Any intelligent layman can with some application and concentration absorb the gist of it as the language is not technical and the style is clear. Many practitioners would do well to peruse this little volume as a result of which many terms such as "respiratory quotient", basal metabolism, vitamins etc. would have greater significance.

The author has avoided dogmatism and theorizing as far as possible. The first eight chapters consider general food requirements. The last eight chapters take up the subject of vitamins and vitamin requirements. It appears to the reviewer that this last half might well have been condensed for the purposes of this book but it is quite apparent that this subject is a hobby of the author—It should be condoned, however, as it contains a great deal of sound information.

RANDOLPH LYONS, M. D.

History of Pathology: By Esmond R. Long, Ph.D., M. D. Baltimore, Williams & Wilkins Co. 1928. pp. 291.

This is a small, well written and concise volume devoted to the origin and evolution of pathology. The material is necessarily brief but the author has most excellently condensed the subject matter so that little of importance has been deleted. The approach is largely biographical. There is an excellent foreword by Lt. Col. F. H. Garrison. There are many most interesting photographs and illustrations. It is well worth the reading.

I. L. ROBBINS, M. D.

Goiter Prevention and Thyroid Protection: By Israel Bram, M. D. Philadelphia, F. A. Davis Co. 1928. pp. 327.

In this small treatise on the thyroid and its diseases and influence on human economy, the author frankly admits that the thyroid is the great regulator of the life processes of the individual and deals with its social, psychological and spiritual influence on the activities of man. It is written for both the non-medical as well as the medical public. The author has been writing on the thyroid for years and knows whereof he speaks. It is well presented, interesting and apparently scientifically sound in general. There are many details on diet and the use of iodine, with which one may take exception, but the author quotes good authority and states a vast personal experience to support his views.

I. L. ROBBINS, M. D.

PUBLICATIONS RECEIVED.

W. B. Saunders Company, Philadelphia and London: A Textbook of Surgery, by W. Wayne Babcock, A. M., M. D., F. A. C. S.

P. Blakiston's Son & Company, Philadelphia: A Compend of Diseases of the Skin, by Jay Frank Schamberg, A. B., M. D.

J. B. Lippincott Company, Philadelphia and London: International Clinics, Volume IV, 38th series. 1928. Pediatrics for the General Practitioner, by Harry Monroe McClanahan, A. M., M. D.

Oxford University Press, New York: Treatment of Venereal Disease in General Practice, by E. T. Burke, D. S. O., M. B., Ch.P. A Handbook for the Diabetic, by Albert H. Rowe, B. S., M. S., M. D. Child Health and Character, by Elizabeth M. Sloan Chesser, M. D. Qualitative and Volumetric Analysis for Medical Students, by H. Lambourne, M. A., M. Sc., F. I. C., and J. A. Mitchell, M. Sc. Lipiodol in the Diagnosis of Thoracic Disease, by F. G. Chandler, M. A., M. D., F. R. C. P. and W. Burton Wood, M. A., M. D., M. R. C. P. Methods of Biological Assay, by J. H. Burn, M. A., M. D.

Paul B. Hoeber, Inc., New York: William Harvey, by Archibald Malloch, M. D., M. R. C. P. Microscopical Technique, edited by C. E. McClung, Ph.D.

Harvard University Press, Cambridge: Physician and Patient, edited by L. Eugene Emerson.

Tulane University Press, New Orleans: Angina Pectoris: Anatomy, Physiology and Surgical Treatment, by Walter B. Caffey, M. D., F. A. C. S., and Philip King Brown, A. B., M. D., and John Davis Humber, B. S., M. D.

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No. 9

THE VALUE AND LIMITATIONS OF LABORATORY METHODS IN CLINICAL INVESTIGATION OF CARDIOVASCULAR DISEASES.*

C. J. WIGGERS, M. D.,

CLEVELAND, OHIO.

The director of a department in a medical school enjoys many privileges; but he carries numerous and varied responsibilities as well. He is charged not only to teach medical students but to inspire them as they learn. It is his function so to staff and organize his department that productive investigation for the good of humanity is continually, not spasmodically, carried out. It is his duty periodically to summarize by reviews or monographs the status of a subject in which he is qualified, so that others may keep in touch with the progress of contemporary research. Occasionally, as in this instance, it is his privilege to do this in a more personal way by means of a lecture. Frequently, he must courageously face the less pleasant task of criticizing the methods, results, and interpretations of other investigators, to the end that the quality of research shall steadily improve. Even though executive matters be in able hands, he cannot absolve himself from courageous participation in molding the plastic tendencies of the institution of which he is a living part.

I venture these observations of a general nature before proceeding to the main theme because professors in the ranks can often give expression to ideas with better grace and propriety than administrative officers themselves. Professorial opinions so expressed can only be interpreted as personal views; whereas the same opinions uttered by a President or Dean are more apt to be regarded as expressions of institutional policy.

With this sense of immunity from misinterpretation, the temptation arises to devote an entire oration to problems affecting a medical school. Such a discourse would not be inappropriate on an occasion set aside as a memorial to Dr. Chaillé. For, while it has not been my privilege to know him personally, I am given to understand that no subject was dearer to his heart than that of the constant development of the School whose Dean he was.

I have, however, succeeded in inhibiting this temptation to the extent of touching briefly upon a single theme only, and one which leads directly to the subject announced. I refer to practical methods through which clinical departments may derive greater assistance from the laboratory sciences.

The tendencies of the age are evident to all. Clinicians everywhere recognize that material assistance is gained from the application of laboratory methods both for the purpose of investigating the phenomena of disease and as a matter of

*Chaillé Memorial Lecture delivered at New Orleans, December 4, 1928, by the Professor of Physiology, Western Reserve University Medical School.

routine in diagnosis. Clinicians have, in many instances, been leaders rather than followers in the application of laboratory apparatus to man and deserve credit for advancing our knowledge of normal as well as abnormal functions in many directions. Nevertheless, too much of the clinical investigation on patients lacks the convincing precision and accuracy of true scientific work. I was particularly impressed with this fact in a recent survey of literature preparatory to writing a review of the dynamics of valvular disease. This is partly due to the clinician's attitude and belief that the acquisition of laboratory technic is a simple matter which may indeed be entrusted to technical assistants. He often fails to recognize that errors stealthily creep into results obtained by use of apparatus, either on account of inherent limitations of the instruments or because of faulty technic in their use. The personal equation must not be lost sight of. It must never be forgotten that errors that attend the use of an instrument of precision are a function of the individual himself as much as of the instrument. The limits of accuracy must be experimentally established when he *himself* uses the instrument. The fact that the clinician rarely has had a laboratory apprenticeship where the efficiency and limitations of apparatus are checked is largely accountable for this clinical attitude. This fallacy may and often does affect the results; the basic data upon which the conclusions of many a clinical investigation rest contain a significant but unrecognized margin of error. Hence, I would make a plea for a more critical attitude in the selection and use of laboratory apparatus by the clinician.

The clinical investigator, however, does not restrict his studies to patients upon whom Nature is already making experiments; he reproduces and simulates the conditions in animals, with a view of carrying observations further than is possible in man. This tendency is gaining rapidly;

in fact, the clinician who does not have an active experimental laboratory attached to his wards is apt to be considered *passé*. The motive and principle are good and considerable advantage accrues as long as the clinician limits himself to the use of technical apparatus with which he is familiar. When, however, his ambition to engage in experimental work outstrips his laboratory training, the results are far from satisfactory. The space and money devoted to such undirected investigations by unqualified clinical workers is not justified; the time and efforts of men so engaged could be directed to better ends. The products of their laborious efforts could, I am sure, be spared from the pages of our research journals.

The able clinician recognizes the situation. He knows that the attainment of accurately controlled data as well as their interpretation demands more than an elementary knowledge of fundamental principles. He also realizes fully and with great regret that his many professional and administrative functions make it impossible for him to keep abreast of the rapid advances made in all laboratory sciences. He naturally looks to the laboratories for further aid. How can they help to advance clinical investigation? Several ways are being tried.

1. Young assistants who propose to follow an institutional career may spend a year or more in a laboratory either as Fellows or Assistants. Such training will partly but not wholly solve the difficulties. It gives younger clinical investigators a better fund of information as to current aspects of a science, it enables them to differentiate between efficient and inefficient apparatus, it teaches them the caution and safeguards necessary in attaining accurate results, and if widely carried out will help to replace the present purposeless trend of much clinical investigation by research of a more significant sort. But valuable as such a year or two may be, the clinician still finds himself trained only in one direc-

tion, as far as ability to undertake or direct investigative work is concerned.

The suggestion has been made that each clinical department should have men fully trained in a fundamental science. The happy combination of a capable clinician and a well trained investigator must operate to give a well directed impulse to the study of disease. To be truly effective, each clinical department in every medical school ought to have a full complement of laboratory experts; a biochemist, a bacteriologist, an immunologist, a pathologist, a pharmacologist, a physiologist. So constituted, each clinical department could consider itself a self-contained Institute of Medicine. The plan, however, is self-abortive. The cost would be prohibitive; and the number of available places would soon exceed the supply of trained laboratory investigators.

The *extent* to which such a scheme can operate to the advantage of clinical departments and without injury to laboratory sciences is contingent upon the number of recruits that can be drawn into the laboratory branches of medicine. To preserve the integrity of the laboratory sciences, it is unwise to create clinical posts more rapidly than laboratories can afford to part with men. Nor should men be tempted to leave the laboratory posts by offerings of somewhat better compensation. A few years before the War, this danger threatened the very existence of some physiology laboratories. Fortunately, the dearth of laboratory assistants is diminishing somewhat and, with this stimulus of gradually rising salaries, we may be able to attract more men and consequently spare more for clinical positions.

3. A great deal can be accomplished without additional expense, by a more intimate co-operation in laboratory and clinical researches. This could go farther than the present tendency to consult and confer. Members of laboratory and clinical division could to advantage work to-

gether upon many clinical problems. In this way, newer and more reliable forms of apparatus would supercede much equipment that is obsolete; the data would be better controlled, and the interpretations of results would be integrated with the clinical problems. Indeed, with the proper motivating spirit behind such co-operative research, it becomes the ideal method for advancing clinical investigation. It has possibilities which neither laboratory nor clinical departments working by themselves can hope to equal.*

CLINICAL AND LABORATORY CO-OPERATION IN THE STUDY OF CARDIO-VASCULAR DISEASE.

Recent laboratory investigations have established the laws according to which the heart operates in health and by means of which it compensates in disease: Whenever the rate of venous inflow exceeds, for even a short interval of time, the rate at which blood is pumped out of the auricles, the diastolic size of the ventricles increases and the intraventricular initial tension augments. As a result, the systolic discharge increases, partly through prolongation of contraction, partly through a greater velocity of ejection. The economy of effort during ejection is also enhanced. This is the *fundamental mechanism by which the heart increases its stroke volume*, (a) when the heart slows greatly (sinus bradycardia, heart block), (b) when the volume of blood returned to the auricles increases (after exercise, dyspnea or plethora), and (c) when part of the volume ejected during systole flows back into the ventricle during diastole (in mitral and aortic regurgitation where it is the *compensatory mechanism* tending to keep the systolic discharge normal (d) when the resistance to discharge is increased (in hypertension, aortic stenosis), and (e) when ventricular emptying would

*The remainder of the lecture was delivered without a manuscript. It consisted in an effort to show how such clinical and laboratory cooperation is possible in the study of cardiovascular diseases.

otherwise be impaired as a result of myocardial weakness (hypodynamic heart).

Laboratory investigations have supplied new forms of apparatus, the application of which to man enables us to evaluate the behavior of the heart under normal and abnormal conditions, according to the principles outlined above. It remains for laboratory and clinical investigators to unite in applying such newer methods to cardiodynamic problems presented in the clinic.

We can do no more than to enumerate the methods discussed and briefly to indicate a few of the salient points made in regard to each topic.*

1. *The comparison of roentgen-ray plates of different subjects.* This furnishes our best criterion of diastolic size but is subject to complicating effects of heart rate, hypertrophy, and individual differences due to age, weight and height.

2. *Venous pressure measurements in man* in the extremities parallel but do not actually measure right auricular pressures. They may give evidence of the trend of venous pressures but not actual figures for gauging the load on the heart.

3. *Measurement of minute volumes and systolic discharge.* The gasometric methods of determining minute volume are sound in principle; but difficulties of application are so great that I question whether results by any method applicable to man can be generally relied upon. The faith of clinical investigators in the accuracy of these methods is not sustained by critical laboratory studies. On the other hand, the

value of pulse pressure variations as an index of systolic discharge has been unjustly criticized and minimized.

4. *Information given by accurate records of the central subclavian pulse*, when taken in conjunction with ordinate values (Fig. 1) given by brachial, systolic and diastolic pressures.

(a) The afterload against which blood is expelled (=diastolic pressure).

(b) The maximum tension developed within the ventricles (=systolic pressure).

(c) The rate of pressure transfer from ventricle to aorta at beginning of ejection, by steepness of first upstroke (A—B) and by vertical height of the anacrotic jog (B).

(d) The velocity with which the ventricle expels its contents during maximum ejection—by the gradient of the rise from B—C.

(e) The duration of the ejection phase (A—D), and its subdivisions A—B, initial ejection; B—C, maximum ejection; C—D, reduced ejection.

5. *Clinical methods for evaluating pressure conditions in pulmonary circuit.* (a) Left auricular engorgement—detectable by roentgen-ray methods, large P waves of electrocardiograms.

(b) Augmented pulmonary arterial pressures—detectable by accentuation of second sound. The technic of registration by direct means was given.

(c) Methods of determining pulmonary circulation time.

(d) Vital capacity measurement as criterion of pulmonary congestion.

*This section of the address was copiously illustrated with lantern slides.

THE DIAGNOSIS OF MYOCARDIAL INSUFFICIENCY: RESULTS WITH MODIFICATION OF THE DWIGHT-FROST CARDIO-RESPIRATORY TEST.*

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NEW ORLEANS.

Many of us easily recognize edema of the ankles, marked dyspnea or edema of the lungs, with an enlargement of the heart, as evidence of a failing heart muscle, but if we wait for these late signs in this condition the prognosis is considerably graver and the treatment more extensive and costly to the patient.

Accepting Starling's opinion that the physiology of the heart muscle as regards its ability to contract and perform work is identical with that of the skeletal muscles, I have for years attempted to recognize early signs of myocardial failure and by toning up the heart muscle with proper exercise, I believe I have seen some beneficial results, which I have reported in the past.⁽¹⁾ It cannot be denied that the efficiency of the heart function is dependent directly upon the tone of its muscle, and that any treatment of an individual should be based upon a consideration of the tone of his heart muscle, be the treatment surgical, medical or hygienic.

In arriving at a diagnosis of a weakened heart muscle, the history of the case is very important, bearing in mind that all the acute infectious diseases, as well as syphilis, rheumatism and renal insufficiency leave their imprint upon the heart muscle. One of the earliest symptoms is dyspnea, noticed only when mounting stairs, or upon other slight extra exertion, and often not recognized by the patient until reminded by questioning of the examiner. A slight hacking cough, often nocturnal, may be the initial symptom.

Pain in the epigastrium, with an enlarged, soft, tender left lobe of the liver may be the symptom causing the patient to seek medical aid, or it may be indigestion and a general feeling of lassitude. Vertigo on exertion, fainting spells and edema of the ankles or lungs, even though slight, must be regarded as evidence of marked myocardial weakness.

In an attempt to recognize these cases early, I believe we should consider a soft systolic murmur at the apex, distant indistinct heart sounds, and all arrhythmias as suspicious of myocardial changes, while a pulsus alternans obtained in the routine taking of systolic blood pressure has uniformly proven to be due to a weakened heart muscle. When this condition is suspected instruments of precision should be used as aids in arriving at a positive diagnosis, and along with the electrocardiograph and polygraph, the cardio-respiratory test should be included.

In a paper before the Sixth Annual Congress of Anesthetists in May, 1927, I reported results with a modification of the original technic of Frost's⁽²⁾ test, which was favorably discussed by him at that time, and I understand that he has since modified his original plan somewhat along the lines suggested.

I have been using the Dwight-Frost Cardio-Respiratory test as a routine in my office work since 1924, and I am firmly convinced that it is an extremely valuable aid in the diagnosis of myocardial insufficiency. To one unfamiliar with the method, the test may at first appear complicated and impractical, but very little experience soon removes objection.

The technic is fully described by Frost,⁽²⁾ as well as in a paper by me,⁽¹⁾ both of which references are easily accessible, and a detail of the original methods of procedure is unnecessary.

*Read before the Orleans Parish Medical Society, November 26, 1928.

MODIFICATIONS OF THE ORIGINAL TECHNIC.

As a means of evaluating cardio-vascular cases from a life insurance standpoint, the full technic is necessary and should be followed closely. From a clinical standpoint, however, I am of the opinion that the last three steps in the test; in which the patient is made to expire his full vital capacity through a Simplex Spirometer three successive times, is the all important part of the test. In numerous instances, I have been able to demonstrate the presence of myocardial insufficiency by this means, which subsequent observation of the patient has confirmed. Several precautions, however, should be observed:—(1) A constant pressure of 20 mm. should be maintained; (2) the full vital capacity should be expired; (3) the maximum rise in systolic pressure should be recorded; (4) the rapidity with which the terminal rise in systolic pressure appears, should be noted; in cases of marked myocardial weakness, five to ten seconds may elapse after release of positive pressure in the thorax before the systolic pressure can be heard; (5) the systolic pressure before each step should be noted, as a falling base line has great significance; (6) the successive steps should succeed one another within ten seconds of each other.

I have not found it necessary to release the pressure in the cuff until the three stages have been completed. There are points in the use of the test, such as the detection of the so-called "irritable" heart with hypertension after respiratory strain; and the reaction of diastolic pressure to respiratory strain, especially noted by Amiral,⁽³⁾ which are not within the scope of this paper, but which may be very important in judging a life insurance risk, and for which, the full technic is necessary.

I have followed Frost's technic carefully, but found that steps 3, 4 and 5, have not given sufficient information to warrant the time consumed in instructing the patient in same; and for the past two years I have dispensed with these steps. Step 2, in

which the patient inspires fully and relaxes the chest and the diaphragm gives an idea of the tone of the heart muscle and demonstrates if the patient understands what is meant by a full inspiration.

PRESENT PLAN OF USING THE TEST.

The technic which I now use, is as follows: After physical examination of the patient with recording of results, the systolic and diastolic pressure is taken by the auscultatory method with the patient seated, the pulse rate being counted at the same time by auscultation over the brachial artery. The patient is then instructed to inhale fully, close the glottis and relax the diaphragm, the systolic pressure being noted, but not recorded. The pressure in the cuff is then released and the patient told to expire through the spirometer after full inspiration, cautioning him to watch the pressure gauge and keep the pressure uniform at 20 mm. of mercury. The systolic pressure is taken before the patient inhales, and after expiration has been completed, the maximum systolic pressure, being recorded. Without releasing pressure in the cuff, the needle of the spirometer is turned to zero, the systolic pressure is again taken and the patient again instructed to inhale fully and expire through the spirometer as before. Three successive readings are then made, corresponding to steps 6, 7, and 8 in Frost's technic. The results of each previous step can be recorded while the patient is expiring through the spirometer, this being facilitated by a pad on the desk with blank spaces to be filled in, as shown by the accompanying sample:

CARDIO RESPIRATORY TEST.			
——Blood Pressure and Pulse——			Vital
Before Test	After Test		Capacity
Systolic .....120	Systolic .....130		230
Diastolic 80	Diastolic 80		
Pulse rate..... 76	Pulse rate..... 74		
Base Line		Response	Cu. In. Air Blown
1.	120	140	225
2.	130	150	230
3.	145	165	225

The pressure in the cuff is then released and after a delay of about ten seconds the

systolic and diastolic pressure, as well as the pulse rate, are finally noted, followed by auscultation of the heart to determine the appearance of any murmurs or the accentuation of pre-existing murmurs, as well as a notation of any irregularity in rhythm.

The response in each step can be plotted as a curve, an ascending curve denoting a normally functioning myocardium.

This modification shortens the Dwight-Frost test materially, and can be carried out in a few minutes. It should be a routine procedure before any anesthetic is administered, as well as in any complete physical examination. A discussion of a few cases will probably be more convincing in determining the clinical value of the test, than any statistical study of cases, and I have therefore, chosen the former method.

ILLUSTRATIVE CASE REPORTS AND COMMENTS

Case I. (Chart I). A young man examined by me in August, 1925, with a long standing organic valvular heart lesion, resulting in mitral regurgitation. Heart was hypertrophied and responded excessively to respiratory strain, so that he was a poor insurance risk, but an excellent operative risk. He is in perfect health, plays golf regularly, and his curve denotes a good myocardium.

Case II (Chart II). A patient with attacks of tachycardia coming on at irregular intervals, and greatly worried over his condition, having been told that he had "myocarditis" after an electrocardiographic tracing had been made. He was highly neurotic and suffering from gastric distension, the result of pylorospasm. No physical signs could be found suggesting any cardiac lesion, and his curve denotes a sound myocardium.

Case III (Chart III). The curve as well as physical signs denote an enlarged heart with a weakened heart muscle, the result of lues. A poor operative risk.

Case IV (Chart IV). Evident myocardial insufficiency, and a poor operative risk.

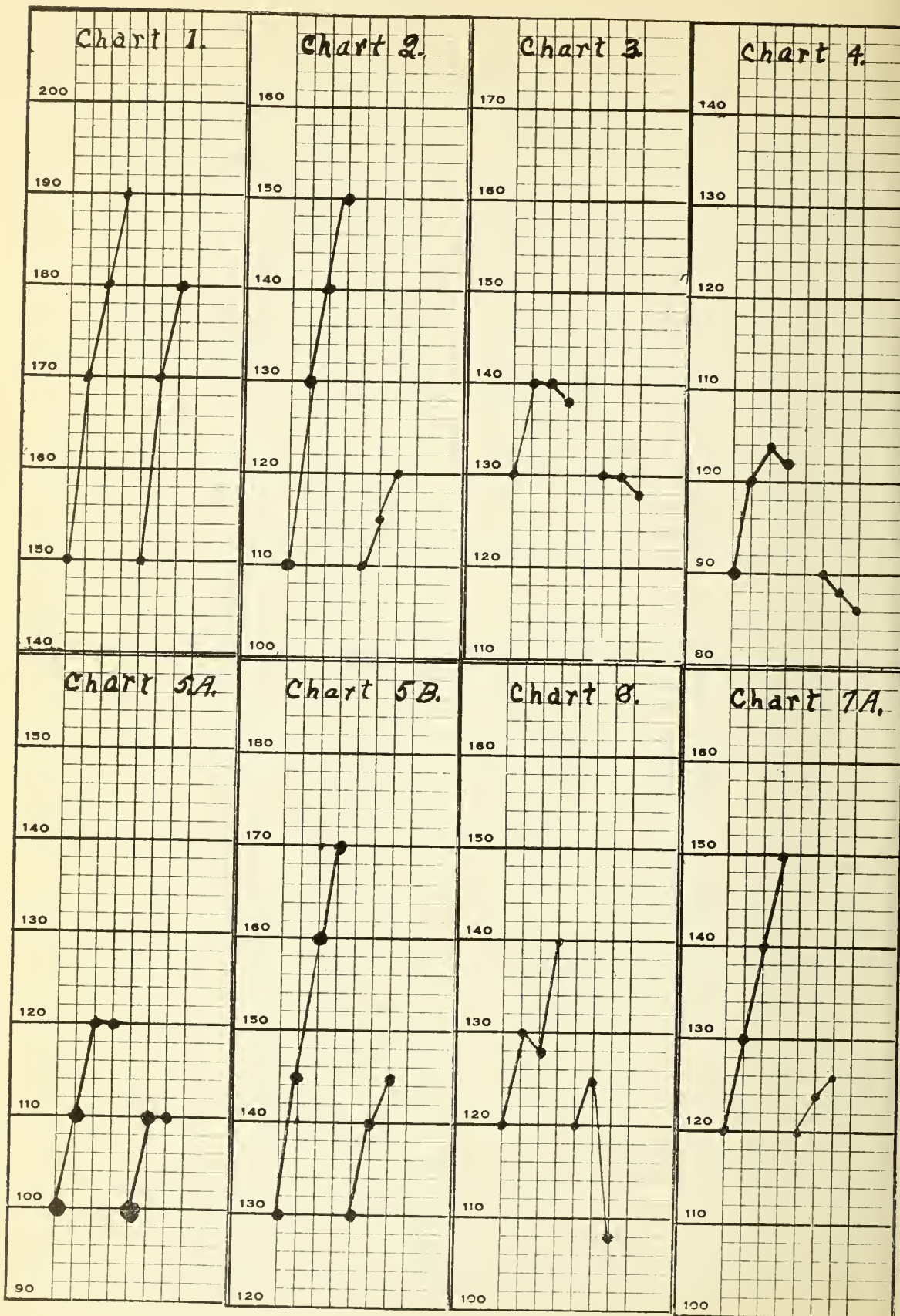
Case V (Chart V, A and B). A merchant, 62 years old, with dyspnoea on exertion, cough and occasional vertigo. At first examination, February 24, 1926, (Chart V, A.) he had definite myocardial insufficiency, following influenza, and

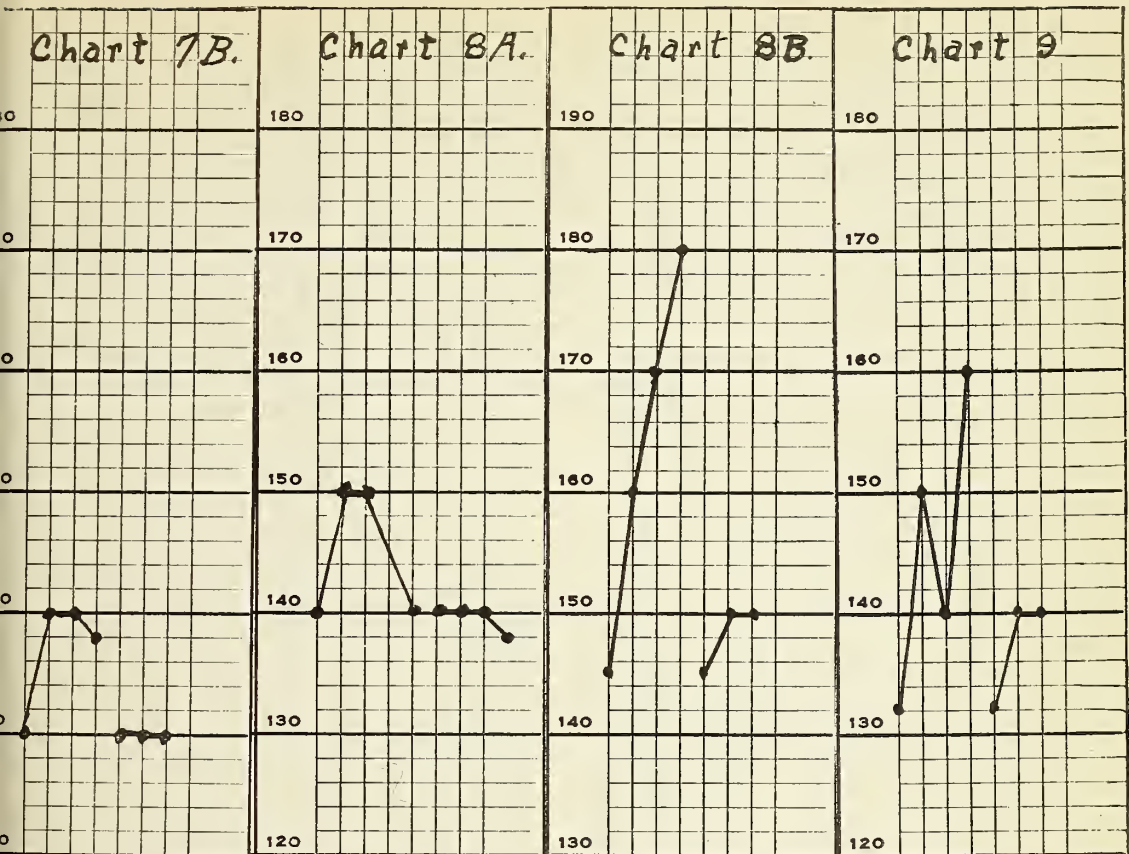
at this time he was a poor operative risk. After an initial rest in bed followed by graduated exercises, his heart muscle has toned up and he, now, has no subjective symptoms of a weakened heart muscle, while a cardio-respiratory test made March 21, 1927, (Chart V, B.) shows a normal response to respiratory strain. In my opinion he is now a good operative risk.

Case VI (Chart VI). A clerk, 46 years of age, complaining of nervousness, palpitation, oppressed feeling in region of heart, gastric distension. He was told he had "nervous indigestion." Physical examination was only suggestive of a weakened heart muscle, but his response to the cardio-respiratory test was very poor, and with a falling base line, a diagnosis of myocardial insufficiency was made, which was confirmed by the development later of definite symptoms of such: a poor operative risk.

Case VII (Chart VII, A. and B.). A manager of an oil company and leading a very sedentary life, was examined by me first, March 9, 1925, (Chart VII, A.) when no definite signs of any myocardial disease could be determined, but he was advised to take more exercise on account of a slightly lower response to respiratory strain than is normal. In September, 1926, following influenza, he had an acute dilatation of the heart, with auricular fibrillation, and he was moribund for 24 hours, the heart finally responding to quinidin. He is now able to attend to his business, but has dyspnea on climbing stairs, while physical signs and the response to the cardio-respiratory test, (Chart VII, B.) denote marked myocardial weakness. He is a poor operative risk at present, and in my opinion the prognosis is grave as he cannot be persuaded that he has a bad heart, since he has been told that he has no murmur.

Case VIII (Chart VIII, A. and B.). J. B. S., aged 63, who has been under my observation for the past 13 years, coming for periodic physical examination every three to six months. In 1915 a weakened heart muscle was recognized associated with adiposity and he was persuaded to take up golf, gradually increasing the number of holes he was allowed to play up to the full 18. After losing about 30 pounds in weight and daily rounds of nine holes of golf, his heart muscle compensated fully, to show evidence of failure after a mild catarrhal affection of the respiratory tract. Chart VIII, B., shows the heart muscle functioning normally, while Chart VIII, A., shows a poor response, with marked decrease in the vital capacity, auricular fibrillation and the appearance of a murmur at the apex. Decompensation had followed a month's touring trip when he took no exercise, ate excessively, and finally





caught a cold." He consulted me for cough and general feeling of lassitude, but I conscientiously believe he is alive today, because the cardiac weakness was recognized by means of this test and he was cautioned against over-exertion.

Case IX (Chart IX, A.). J. H. W., aged 54, consulted me for attacks of syncope. There was no dyspnea or other subjective symptoms of cardiac weakness. The cardio-respiratory test first attracted attention to his cardiac weakness, a partial heart block later being demonstrated by the electro cardiograph. Treatment of his heart has resulted in perfect health today.

Comments on Charts

Chart 1. C. E. McG., age 32, weight 123, height 5 ft. 7¼ in., date 8/12/25.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	280 cu. in.
Systolic.... 140	Systolic.... 155	Capacity Blown
Diastolic.. 90	Diastolic.. 100	260 cu. in.
Pulse rate 100	Pulse rate 112	270 "
		280 "

Heart: Hypertrophied, but compensated. Loud systolic blow at apex, transmitted to base and up axilla. Transverse cardiac dullness 16 cm. Apex beat at mammary line.

Comment: Response excessive with ascending base line. Good operative risk, but poor insurance risk. Myocardial tone good.

Chart 2. M. P. B., age 48½, weight 153¼, height 5 ft. 4¼ in., date 5/3/27.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	240 cu. in.
Systolic.... 110	Systolic.... 120	Capacity Blown
Diastolic.. 60	Diastolic.. 60	225 cu. in.
Pulse rate 80	Pulse rate 76	240 "
		240 "

Attacks of tachycardia. Highly neurotic; had been told he had "myocarditis," after electrocardiographic tracings had been taken.

Heart: No enlargement. Transverse cardiac dullness 14 cm. No murmurs, and pulse regular.

Comment: Response normal in every respect with ascending base line.

Chart 3. L. G., age 49, weight 227, height 5 ft. 11¼ in., date 10/15/26.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	240 cu. in.
Systolic.... 128	Systolic.... 128	Capacity Blown
Diastolic.. 80	Diastolic.. 80	225 cu. in.
Pulse rate 84	Pulse rate 80	225 "
		240 "

Heart: Enlarged. Transverse cardiac dullness 17 cm. Extra systole every 3rd or 4th beat. Cardiac sounds distant. No dyspnea or other signs of decompensation.

Comment: Response to strain very weak and a long interval before return of sound between each step. Subsequently patient developed definite signs of decompensation.

Chart 4. J. W. W., age 50, weight 163½, height 5 ft. 6¼ in., date 9/29/26.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	Capacity Blown
Systolic.... 92	Systolic.... 92	240 cu. in.
Diastolic.. 60	Diastolic.. 60	255 cu. in.
Pulse rate 84	Pulse rate 88	240 "
		225 "

Heart: Slightly enlarged. Transverse cardiac dullness 15 cm. No murmurs, but sounds distant. Emphysema and history of asthma.

Comment: Poor response, and with falling base line suggestive of myocardial insufficiency.

Chart 5a. B. F. T., age 62, weight 185, height 5 ft. 8½ in., date 2/24/26.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	Capacity Blown
Systolic.... 110	Systolic.... 106	195 cu. in.
Diastolic.. 70	Diastolic.. 70	195 "
Pulse rate 88	Pulse rate 88	195 "

Heart: Enlarged to right. Apex beat inside mammary line. Transverse cardiac dullness 16 cm. No murmurs, but sounds are feeble. Subjective symptoms of myocardial insufficiency.

Comment: Poor response but no fall in base line. Suggestive of myocardial insufficiency.

Chart 5b. B. F. T., age 62, weight 185, height 5 ft. 8½ in., date 3/21/27.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	Capacity Blown
Systolic.... 130	Systolic.... 135	285 cu. in.
Diastolic.. 80	Diastolic.. 80	285 "
Pulse Rate 80	Pulse rate 80	285 "

Same as 5a, after one year's treatment of his heart.

Heart: Transverse cardiac dullness 17 cm. No murmurs. No subjective symptoms of cardiac failure.

Comment: Response to strain is normal with ascending base line.

Chart 6. W. H. D., age 46, weight 131½, height 5 ft. 11¼ in., date 6/7/26.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	Capacity Blown
Systolic.... 108	Systolic.... 108	300 cu. in.
Diastolic.. 80	Diastolic.. 80	280 "
Pulse rate 84	Pulse rate 88	270 "

Heart: Not enlarged. Apex beat at mammary line. Transverse cardiac dullness 14 cm. Pulsus alternans. Soft systolic murmur heard over ensiform cartilage and not transmitted.

Comment: Medium response to strain and falling base line suggestive of myocardial weakness. Patient has since developed more pronounced symptoms of cardiac failure.

Chart 7a. W. O. H., age 60, weight 150, height 5 ft. 6¼ in., date 3/9/25.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	Capacity Blown
Systolic.... 120	Systolic.... 130	240 cu. in.
Diastolic.. 75	Diastolic.. 80	210 "
Pulse rate 64	Pulse rate 64	225 "

Heart: Normal in size and rhythm. No murmurs audible.

Comment: A normal response with ascending base line.

Chart 7b. W. O. H., age 62, weight 150, height 5 ft. 6¼ in., date 5/5/27.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	Capacity Blown
Systolic.... 110	Systolic.... 116	160 cu. in.
Diastolic.. 80	Diastolic.. 80	140 "
Pulse rate 76	Pulse rate 72	150 "

Same as Chart 7a.

Comment: Poor response with stationery base line suggests myocardial weakness. There is a great reduction in vital capacity since first test in 1925.

Chart 8a. J. B. S., age 63, weight 236, date 4/3/28.

— Blood Pressure and Pulse —		Vital Capacity
Before Test	After Test	Capacity Blown
Systolic.... 140	Systolic.... 138	120 cu. in.
Diastolic.. 90	Diastolic.. 90	110 "
Pulse rate 120	Pulse rate 130	120 "

Has been under personal observation for 13 years and came for periodic physical examination, complaining only of slight cough and lassitude.

Heart: No enlargement and no murmurs. Tachycardia and extra systoles every 3rd to 5th beat. Alternating systolic blood pressure.

Comment: Incomplete response and falling base line denotes failing heart muscle. Electrocardiographic tracing: Auricular fibrillation. Ventricular extra systoles. Left ventricular preponderance.

Chart 8b. J. B. S., age 63, weight 236, date 6/28.

Blood Pressure and Pulse		Vital Capacity	
Before Test	After Test	— cu. in.	Capacity Blown
Systolic.... 145	Systolic.... 145	180 cu. in.	
Diastolic.. 90	Diastolic.. 90	180 "	
Pulse rate 76	Pulse rate 76	195 "	

Same patient as represented in Chart 8a, run during periodic physical examination.

Heart: Normal in size and rhythm. No murmurs and systolic blood pressure regular.

Comment: A normal response. No evidence of myocardial weakness.

Chart 9a. J. H. W., age 58, weight 206, height 5 ft. 7 in., date 2/25/27.

Blood Pressure and Pulse		Vital Capacity	
Before Test	After Test	— cu. in.	Capacity Blown
Systolic.... 132	Systolic.... 135	180 cu. in.	
Diastolic.. 80	Diastolic.. 80	190 "	
Pulse rate 76	Pulse rate 80	190 "	

Heart: Cardiac dullness slightly increased over normal. (5 and 15 cms.) No murmurs but heart sounds distant and indistinct.

Comment: This response is abnormal, but the long pause before reappearance of auditory beats after each test is strongly indicative of myocardial weakness. E. C. G.—Inverted "T" waves in third lead. Suspicious evidence also of partial heart block.

SUMMARY.

(1) The Dwight-Frost Cardio-Respiratory Test is a valuable aid in the diagnosis of myocardial insufficiency. (2) For this purpose Steps 6, 7 and 8 of the test, are deemed sufficient, and a modification of the original technic is proposed. (3) A poor response to respiratory strain in Steps 7 and 8, with a falling base line is considered suggestive of myocardial weakness. (4) Case reports with accompanying charts on patients followed over periods of a year or two, demonstrate that the response to the cardio-respiratory test is in proportion to other definite signs of myocardial weakness. (5) The test should be of value to

the anesthetist in evaluating operative risks.

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THE CONSIDERATION OF THE PSYCHIC FACTORS IN PHYSICAL DISEASE*

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How often is the surgeon, the internist or the general practitioner called to see a case and find himself confronted with an individual whose predominant symptoms are mental? Then again, just how often has he failed to recognize the underlying mental or emotional state of his patient? These are every day occurrences met by the physician, whether he be a specialist or general practitioner and are of vast importance in making his diagnosis and instituting proper treatment.

In the care and treatment of any disease, either physical or mental, the psychologic aspect should be carefully considered. Every physician should know just how a patient feels towards himself and his trouble. Since the practice of medicine has been divided into the many specialties, there is a tendency to lose sight of the patient, especially his psychologic make up, and treat only the diseased part involved. It is a very common occurrence for the internist to say to his patient who has consulted him for an abdominal pain, "You had better see a surgeon regarding this

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trouble" or "An operation will most likely have to be performed." If the trouble is purely psychogenic, you have only helped the patient to establish, in his mind, a fixed pathological condition where none exists and hindered materially the prognosis of an early recovery.

The failure to recognize the psychic element in disease has provided the means for the different cults to thrive. The patient desires relief and, if his physician does no accomplish this, he then seeks aid elsewhere.

Why are the mental symptoms so often overlooked? Simply because the busy practitioner does not give his patient sufficient time to elicit the psychogenic nature of their trouble. In this day with specialists and laboratory facilities at our disposal, we get away from the individualism and personality make up of the patient and expect him, after he has gone through the mill, to come out a finished product. It is necessary to spend sufficient time to allow the patient to unburden himself of his life's history that the physician may gain a true insight into his emotional sphere and the stress that probably is being encountered. Every physician, whether he be surgeon, internist or specialist, should familiarize himself with psychology and psychotherapy. It will frequently be found that, through these channels, he will, in many cases, hasten the recovery of his patient and often prevent harm by misdirected therapy. Deep rooted complexes are brought to the surface by allowing sufficient time for the patient to tell his trouble, especially if the physician is a sympathetic listener, and many conflicts that have proved a hindrance are removed.

The nervous system is intricately connected with the human organism. The cerebral cortex is regarded as the location of the mind, which is the power that governs the personality. The emotions have definite influence on the many organs of the body. Cannon has shown that the signs

of emotional disturbances are due to the actions of the sympathetic nervous apparatus upon the viscera. By his experiments on animals, it was demonstrated that there were many changes in the body caused by emotions; the digestive secretion, the heart's action, the blood sugar etc., was influenced materially by pain, hunger, fear and rage. Other investigators have shown that mental and emotional states can influence the leukocyte count. Numerous reactions are commonly noted during the different emotions such as, tremors, increased perspiration, diminished salivary secretion, laughter, tears, etc.

There are two main factors of the nervous system; namely, excitation and inhibition. Excitation increases neural function while inhibition decreases or represses neural function. These antagonize each other and are necessary for all psychic and somatic functions. In the mental life, these two factors determine one's reaction to his environment. Throughout life, these forces are constantly at conflict and, from it, result many complexes, which are repressed, giving rise to personality changes, psychic dissociations, etc. These repressions are responsible for the many psychic manifestations, such as fear phobias, anxieties and obsessions noted in the psychoneurotic. They may also simulate somatic conditions, and it is in these cases that the physician is most concerned. If the symptoms are vague and ill-defined, the psychic element is easily discovered but frequently they simulate definite pathological disease, especially is this true when referred to the abdominal viscera. An operation in such cases would be of no benefit and in all probability would give rise to additional symptoms. Not infrequently does it happen that the psychic element is complicated by a somatic disease in which case, the somatic condition must be treated before the psychic element can be removed.

I had a female patient admitted to my service complaining of pain in the chest, difficulty in breathing, being "unable to take a deep breath," cough, anorexia, and lassitude. Thorough physical examination failed to disclose any findings to account for the symptoms. The history revealed the fact that the patient had nursed her mother for many years, who had died with tuberculosis. This was evidently a transference of an emotional state into a bodily symptom. After the condition was explained to the patient, recovery was rapid and she was able to return home to her former occupation after a short stay in the hospital.

Careful examination frequently discloses some delusional idea to account for the physical findings. One of my patients was noted to drink enormous quantities of water during the day and many times during the night, with a corresponding increased amount of urine voided. It was though that she was suffering from diabetes insipidus and this condition was responsible for the apparent thirst. Her reticence in answering questions regarding this condition caused me to become suspicious, but after repeated attempts, it was found that she was under the delusional idea that her spine was filled with insects and she drank water to drown them.

Not only do the psychoneurotics display many somatic symptoms, but frequently the early symptoms of dementia precox and other mental diseases are of the neurasthenic type, such as gastric disturbances heart disease, etc. The following case is a good example of the neurotic symptoms in a beginning precox:

Case 1. A white male, age 26 years, was admitted to the Hospital September, 1926. There was nothing of note in his early life. He had progressed normally in school, and manifested the usual interest in school and social activities. After leaving school, he worked regularly and held positions fairly well until three years before admission. There was no history of alcoholic excesses, drug addiction or immorality. Three years before coming to the hospital, he had his tonsils

removed. He claims to have been unable to work for three months after the operation; and for the following six months he could work only part of the time, due to his invalidism. During this time, he consulted many doctors for his various troubles, and claims to have taken much treatment for "bladder trouble." He then developed a "pain in the left side of his chest." He tells of this pain leaving his side and "going to his intestines." One year before commitment, an appendectomy was performed and since that time he has been unable to work at all. He still continued to be weak, complained of many abdominal pains and noticed that he walked in a "strange way." When presented at the staff, nothing could be brought out except many somatic complaints with no pathology. His symptoms were mainly those of psychoneurosis, neurasthenic type. With hospitalization, he was benefitted materially and it was thought that he could make a satisfactory adjustment at home and was furloughed December, 1926.

Social service reports of the patient while away from the hospital and also reports at the clinic held monthly in New Orleans by members of the staff were to the effect that he was unoccupied, manifested no interest in things about the home, showed a tendency to seclusiveness and, during the latter part of his stay, developed ideas of interference, especially by his neighbors. It was necessary to return him to the hospital. This case is a good demonstration of the neurastheniform symptoms often seen in early dementia precox. The true nature of the disease is usually overlooked until delusions and hallucinations with mental deterioration develop.

Thus far, mention has only been made of the physical symptoms that are purely psychic. I will now mention a few of the physical conditions that are responsible for psychic manifestations either due to pathological changes or toxemias. I shall not attempt to go into the many physical conditions that give rise to mental symptoms, but will only mention a few with case histories.

TYPHOID FEVER

In typhoid fever, nervous symptoms are commonly noted, but are usually of a mild type, such as stupor, drowsiness, mild delirium, especially at night, and occasionally hallucinations. In the following case, the symptoms at the onset resemble a maniacal psychosis.

Case 2. A white male, age 39 years, a farmer. His habits were good. There was some emaciation. Five days before admission, he was restless and suffered from insomnia. Suddenly, he became excited, untidy and destructive. He suffered auditory hallucinations and developed delusions of persecution. He thought someone was in the room with him, etc. His condition necessitated his being placed in jail. It is reported that he had had a mental upset when a boy, the age at which this upset occurred was not given. Cause of present trouble was given as worry over wife's bad health. At the time he was examined for commitment, he was extremely excited and talked incessantly. "He claimed he was climbing walls all the night before and that the physician was killing his wife." When admitted to the hospital, the symptoms were those of a delirium. Complete disorientation, auditory and visual hallucinations and extreme overactivity were noted. It was noted that he had an elevation of temperature. He was transferred to the hospital ward and, during the second week of his illness, the blood showed a positive Widal reaction. The clinical picture was that of typhoid. After the first week, his mental symptoms were very much diminished in severity and resembled a mild delirium with irritability. The course of the disease was uncomplicated except for the mental symptoms. Temperature reached normal after the third week. From the first week, the mental symptoms gradually improved and, when the temperature became normal, all mental symptoms had disappeared. He was discharged as soon as his physical condition was such that he could leave the hospital.

This case is exceedingly interesting from the fact that the mental symptoms masked the true nature of the disease. The mental symptoms of typhoid usually occur during the course of the disease, especially noted at the height of the febrile period or towards the end of a long protracted case. There is no doubt that his predisposition to mental disorders was largely responsible for the sudden appearance of the mental symptoms at the beginning of the infection.

ALBUMINURIA

Case 3. A white female, admitted to the hospital December 22, 1926. She was the mother of one child, two weeks old. About three months before admission, she suffered with headaches, dizziness and dyspnea. Some swelling in her lower limbs was noted. In the early part of

December, just before her child was born, while cleaning the house, she became unconscious. The baby was born during the early part of December when the patient was delirious.

Upon admission, she was excited and in order to keep her in bed, it required someone to be with her constantly. She talked incessantly, her conversation being rambling and rarely ever was the end of any thought reached. The content of thought was largely delusional and of a persecutory nature. Hallucinations were vivid and were both visual and auditory. There was a marked flight of ideas. Upon examination it was found that she was running a 5 per cent albumin in her urine. Treatment was instigated consisting of hot packs and diuretics. After the second week, there was marked improvement in her physical and mental condition. Patient began to notice things about her and talked rationally about different things at intervals. At the end of the third week, her conversations were relevant and coherent and she was able to write letters to her relatives. Her mental condition had improved to such an extent that she was practically clear.

She claims that, during this delirium, "she thought her baby was being killed and she could see people harming her, and thought she was to be killed herself." There was a period of time during which she could not recall any occurrences. Many occurrences appeared to her like dreams, and about these she was not certain. Urinalysis showed gradual diminution in the albumin content and only a faint trace was noted at the time patient's mental condition was clear.

By February, she had recovered, and repeated urinalysis showed the urine to be free of albumin. She was discharged from the hospital in March.

This is a case of a psychosis accompanying a functional albuminuria due to pregnancy. The mental symptoms throughout the course of this disease were very marked from the onset, and were present for a period of about six weeks. The marked psycho-motor activity with flight of ideas resembled a manic episode. As the percentage of albumin in the urine decreased, the severity of the mental symptoms diminished. The psychic manifestations in this case were purely toxic. After recovery, she showed insight into her upset and recognized her delusions and hallucinations as such.

PELLAGRA

Case 4. Colored male, age 22 years, admitted September 12, 1927. His mental symptoms began a few months prior to his coming to the hospital, and progressed gradually. The initial symptoms were forgetfulness, and wandering aimlessly about. He complained of frequent headaches and pains in the back and legs, being easily fatigued. When admitted, he was so weak that he had to be supported when he walked. All movements were very slow and deliberate, and mental retardation was marked. Questions were repeated and answers were slow, terse and in a low tone. His expression changeless and one of profound depression. During examination, he manifested little interest, although replies were relevant and coherent. There were no demonstrable delusions or hallucinations. He was disoriented, but possessed some insight. He claimed his "mind is confused and it is hard for him to think." He showed the physical signs of pellagra; he was very weak, especially in his lower extremities. There was evidence of eruption about his ankles, on the dorsum of his hands and on his forehead. History of diarrhea before admission. He was given nourishing diet, tonics and brewer's yeast. His physical condition improved rapidly and the mental symptoms gradually disappeared. January 30 he was presented to staff for home going and was found to be clear mentally with perfect insight into his condition.

In the above case, the mental symptoms resembled the depressed phase of manic depressive insanity. Most of the cases of pellagra that I have seen with mental symptoms show confusion, depression and retardation. It is not an uncommon occurrence to see a condition resembling a pre-cox reaction, especially the catatonic type; a maniacal state, or, in fact, the mental symptoms may simulate any psychosis. In our hospital cases, we find that all psychosis may have pellagra associated with them, but without any relation to the mental symptoms. Many cases of pellagra show no mental symptoms at all.

CONCLUSION.

In conclusion, I wish to stress the importance of listening sympathetically to the patient's history of his life, spending sufficient time to allow him to discuss freely his attitude towards his troubles. Always endeavor to establish a relation with the patient that will elicit his confidence,

thereby enabling him to disclose complexes that are burdensome. Psychic manifestations in disease are encountered in all classes from the illiterate to the college graduate, and must be studied and considered along with the physical findings; if not, you will fall way short of the mark in restoring the individual and creating harmony within himself that will permit an adjustment in the environment in which he has to live.

DISCUSSION

Dr. D. H. Keller (Pineville): I consider it a great honor to be asked to open this discussion, and also a great privilege to be present to listen to the paper which has just been read by Dr. Miller, whose years of experience in this institute make him thoroughly capable of presenting this subject in a lucid and interesting manner. I wish to especially compliment the doctor on the fact that he has avoided long Latin words, and has put a psychological subject into such language that the average practitioner of medicine can understand every word and every paragraph. It is something that is not done sometimes by members of our profession.

There are two factors which I would like to stress in this paper. Last night, when we finished hearing our presidents address, we were under the idea that other people make mistakes, but that the regular practitioner rarely does. Now that we are by ourselves, speaking, as it were, "en familee," we can acknowledge that we make mistakes, all of us, and many of us make many mistakes, and Dr. Miller has pointed out two common mistakes that are made.

In the first place, the psychiatrist, the person who takes care of the mind, frequently loses sight of the fact that that mind is associated with the body, and by neglecting the ailments of that body, loses the golden opportunity to cure the mental disease. Then there is the mis-demeanor, the mistake that the general practitioner makes, that includes the surgeon, the eye man, in fact, all the other specialties outside of psychiatry. The mistake they make is this, when they treat a person, they treat the body and they forget that that body is associated with the mind. The reason that this is done is as follows:

The mental specialist isolates himself, more or less in institutions, and gets out of touch with medicine as a whole. The medical man, as a rule, is absolutely ignorant or mental diseases. I would suggest two remedies, the one is that every physician, before he be given the right to

practice medicine by State license, be urged or forced to spend at least a few months in some hospital for the insane, so that he will at least learn the nomenclature and the general symptomatology of insanity.

The second thing I would urge that no one begins the specialty of psychiatry until they have served their apprenticeship in the practice of general medicine. Our specialty is the youngest specialty there is. We had surgeons and internists and eye men, at a time when the care of the insane in state institutes was simply custodial, and our state institutions were simply boarding houses. During the last twenty years, especially since the World War, our specialty has come to claim its right in the field of medicine, and more and more will the practice of nervous and mental diseases be recognized, not only as an important part of the field of medicine, but, in time to come, it will be considered as one of the most important parts of medicine.

We recognized the fact that all insane people are not within the walls of a great institution like this, but only a selected few are there. We also recognize the fact that there are very few persons who have absolutely sound minds, and, in the stress of civilization, those few are becoming fewer all the time. So, I would ask all you general practitioners to spend a half hour once a week in reading up on our specialty, and when you have a chance, visit one of our institutions, meet with us in our staff meetings and see if we cannot get together for mutual benefit.

Dr. C. S. Holbrook (New Orleans): It is a great pleasure to me, today, to be back home. For five or six years, I studied psychiatry in this institution, I walked these various corridors, attended the staff meetings, and did a lot of very interesting work. Every department here brings back very pleasant memories. A small cottage on the grounds was built for me in which I spent many very pleasant days. I have had the opportunity of seeing at close range the patients who are in this institution for custodial care.

During the past ten years, I have seen many types of mental disease outside of an institution. There has been many cases that we, as physicians, could prevent from developing a disease so bad that they would have to be placed in institutions, and I think that should be the keynote for us, that we should make every effort to prevent a psychosis or prevent a psychotic disturbance becoming so manifest that the patients become anti-social, or so disturbed that they cannot be treated in any other place except a hospital.

We frequently see the functional disturbance, all of us do, every man here sees people suffering from heart trouble, when there is nothing wrong with the heart; or we see them suffering from stomach trouble, when their stomach itself is perfectly normal. The mere fact that we tell these people that there is nothing the matter with their hearts, nothing the matter with their stomachs, does not help; and to tell them that they are "nervous" and "not to worry" and "to think about something else," that again does not help.

The psychotic should have just as careful attention in the handling and should require as many visits, as people suffering from other diseases. The patient with a heart syndrome is not at all satisfied when he is told that it is all imagination, he knows there is something wrong with him, he feels that way about it, and if you tell him that it is imagination, he knows better, and he is going to go and see some other doctor.

But, one can go into the analysis of the situation, not a psycho-analysis, but a simple analysis in which one is willing to listen to the patient, how the trouble began, on several occasions, seeing the patient possibly every day for three or four days, and thus get at the mechanism of his disturbance. A great deal can be done then in giving him an explanation, of telling him how these things develop and the patient will then be able to resume his normal life.

I have in mind just a case that will illustrate this point. There was a school teacher who had been in bed for four months in New Orleans. She was seen by various men, they all knew she had nothing wrong with her heart, but she could not breathe comfortably, and she could not get around at all. A simple analysis that extended over three or four weeks was sufficient to have her back in school.

Dr. W. J. Otis (New Orleans): Constructive medicine teaches that you cannot separate the psychic from the physical, every physician should acquaint himself of that fact. The neuropsychiatrist in preparation for his specialty has already laid the foundation in clinical medicine by intensive post-graduate work and study. His diagnosis as a rule is made by exclusion. Quite true, these patients have concomitant illnesses that we do not deny but rather expect, these should be treated along with their psychic factors and their conduct reactions. I do not see how anyone can practice medicine who does not coordinate the psychic and the physical, as well as the spiritual.

Dr. E. McC. Connelly (New Orleans): I do not know that I have so much to say, but I was very glad to hear Dr. Miller's paper. I think we ought to request him to go upstairs and read it to the surgical section, it would do most all of us good.

At the risk of repeating, I would like to emphasize what Dr. Otis has said, in regard to the simple assurance of these patients that they have no physical condition the matter with them. I would like to see the word "Imagination" eliminated from the vocabulary of every physician and everybody else who speaks the English language.

The patient, when he gets to the neuropsychiatrist, after having passed through innumerable hands, has "Imagination" on his shoulder, and the minute anybody attempts to go into the matter, if it is of any length at all, he will meet you with all the antagonism in the world. "I know, you are going to say, it is 'imagination'." I think all of us have had that experience.

From another angle, Dr. Miller's paper brings out a point to be emphasized and considered. It struck me, when he recited his cases, of what a pity it was that these patients, suffering from transient conditions, should have had to go to an insane asylum to get the proper attention and care. If the men, who saw them first, had recognized the fact that physical conditions frequently produce psychic symptoms, they may have been saved that stigma. It is fortunate for the patient, of course, to have the hospital to come to, but, on the other hand, there is not any question but what the patient, leaving a mental hospital, does have a certain handicap that will follow him for a good many years to come, I mean from an economic as well as a social standpoint, and it would seem a pity for it to be necessary for them to come to a state hospital for treatment that probably could have been given somewhere else.

Dr. L. L. Cazenavette (New Orleans): Dr. Miller's paper is entitled, "The Consideration of Psychic Factors in Physical Diseases." I think that we should consider also the physical factors in psychic diseases. There is no doubt that many psychic manifestations are due directly or indirectly to physical or organic diseases, just as Dr. Holbrook has said. These conditions are met with more frequently in patients of advanced age suffering with cardiac or renal insufficiency, sometimes both. Such patients feel very sick and know there is something seriously the matter with them. They finally develop a true anxiety neu-

rosis. It is for the relief of this latter condition that they may consult you. It behooves us therefore to make a thorough physical examination before a diagnosis of nervous or psychic condition is made.

Dr. T. J. Perkins (Jackson, La.): The importance of physical relation to psychic conditions is so great at this hospital that, in every case that enters the hospital, the patient is run through a complete clinic. First, there is a complete laboratory examination of his blood, urine, sputum and spinal fluid, if necessary. For there, he goes to the dental department, where he has a complete inspection of his teeth, and, if necessary, transillumination and roentgen-ray examination of his teeth. From there, he goes to the eye, ear, nose and throat department, where we get a report on the conditions of his ears, eyes, nose and throat. Fourth, the general psychiatric and neurological and physical examination is made.

I think Dr. Miller's paper is timely, when so many patients, as Dr. Connelly has called your attention to, enter the hospital, suffering from a transient toxic condition, and however unfortunate it may be, there is a sociological and economic stigma attached to every man who enters a state hospital. Not only the medical profession, but society at large, should be taught that it is no more a stigma to suffer from a mental condition than it is to suffer from a physical condition; and many of the physical conditions are more of a stigma to the individual than any of the psychic conditions, save those due to social diseases.

Dr. Jno. N. Thomas (Pineville): I have listened with a great deal of interest and pleasure to Dr. Miller's paper and discussion by members of the profession here. I am going to be very brief in my remarks.

The treatment of nearly six thousand cases of mental diseases in the Central Louisiana State Hospital at Pineville has convinced me that surgical operations for mental afflictions pure and simple, are a very rare necessity. In one of the great institutions in this country, in New Jersey, the superintendent there has been using surgery to a large extent for the treatment and curing of so-called mental diseases, most of these cases belong to the praecox group. I do not know, and cannot recall from talking to him and members of his staff, that there has ever been a case benefited.

I will just mention an instance that will illustrate: "The daughter of a Yale professor was first treated by a local physician in Connecticut, then sent to Dr. Floyd Haviland, one of the greatest psychiatrists in the country, for examination and diagnosis. Dr. Haviland examined the young woman and made a diagnosis of dementia praecox of the hebephrenic type. The professor said, "Oh, no child of mine could have dementia praecox. I am going to send her to Doctor Cotton's institute in New Jersey."

The girl was sent there, a perfect physical specimen, and the first thing they did for her was to pull her teeth, all good teeth, pulled them all out, no results. The next thing was to take her tonsils out, without results, and the next was to resect a portion of the colon, without results except death.

There is rarely, in my opinion, necessity for surgical interference in these cases of mental diseases. I feel that confinement in an institution, with proper care, and they can only be cared for in institutions that are properly fitted for their treatment, this, with time and care, will usually rectify the disturbance and bring about restoration, if it is possible.

Dr. J. A. O'Hara (New Orleans): I did not expect to accept this pleasure today, but I had the benefit of sleeping last night in this institution, and I feel as though I ought to say something about this institute.

As a member of this body, I want to first say to you gentlemen that if there is any organization in the State of Louisiana that stands out in bold relief in our work that is being done for the care of the insane, it is the two institutions in the State of Louisiana. There is nothing being neglected, absolutely nothing. When a patient enters this institution, they begin at the very beginning, where they should begin in our offices, and go down to the last point.

But, unfortunately for the medical profession, they look upon the brain specialists as a little above a chiropractor. In the last few years, however, we have fooled you, because we have found out that the brain is on the top end of the spine, something you have all neglected, and as Doctor Miller has so closely called to your attention.

Now, I do not think there is any profession in the world, especially in the medical line, that we need to offer any apology for, but there is none in the last ten years that has gone so far and so fast as the study of brain diseases, and it is institutions of this kind that enables the physician to go ahead.

Dr. Miller's paper, read by Dr. Miller, should be read before every man in the medical profession, for I do not know of any place in the medical profession where so much sympathy should be given as to the individual who is suffering from mental trouble, who comes into your office. He comes in there absolutely the last end of the scrapping from the medical profession, and, as I was going to suggest, when you take into consideration the thing which you first should remember in examining your patients is the fact that he has a mind; that nobody can have a disease any place in their whole anatomy unless it is increased by his mental condition, when you take into consideration that the cells of the brain are indestructible, that they do not yield to exhaustion of any kind, that the chemical equilibrium is only upset by toxic matters, therefore, when you have a patient come in with a pain some place in the body, it is your duty to dig down and find where that pain is coming from, and you will find that a great deal of it is emotional, and the emotions and the high centers of the brain cover every bit of cerebral cortex, and overflows into every other section.

I am going to ask you, as members of this body, today, for this fact, give the insane that which is due them, give them proper examination they are entitled to before they get to the mental specialist, and if you find their emotions are too great for you to handle, send them to Dr. Miller or Dr. Perkins, or let Dr. Connelly have them, give them to Dr. Otis, send them to some of those men who can handle them, and do your duty to mankind. I thank you.

Dr. C. S. Miller (closing): I wish to thank the doctors for their generous discussions of this paper, and will only say just a few words in closing.

As several of those who have discussed it have brought out the importance of mind in connection with the body, we have all noticed, in our hysterical individuals, many a varied symptom, all of which are of a defense reaction, and with the proper going into the life of the patient, there can very often be found the trouble that is responsible.

In general practice, most all of us have seen the influence of the emotional state, for instance, in a diabetic, we have known them to encounter some emotion in which their blood sugar would run up; and in dealing with all cases, we should not forget to carefully look into the psychic as well as the physical complaint. I thank you.

THE CAUSE, PREVENTION AND TREATMENT OF PUERPERAL INFECTION*

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and

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NEW ORLEANS

I almost feel like apologizing for presenting a paper on such an old subject. There have been volumes written on it, but the high morbidity and mortality clearly indicate that it is still a live subject, vital to the physician as well as to the patient. Goodrich states in an article that one woman in ten has fever during the puerperium; one in forty suffers irreparable damage; and one in four hundred dies in the prime of life, leaving one or more children motherless. Seven per cent of death of women between the ages of 20 and 40 years are due to puerperal infection. Asepsis did more for the pregnant woman than for any other class of patient. Statistics from well conducted maternity clinics and hospitals have their morbidity. There are several explanations for these infections. The most common is the presence of pathogenic organisms in the cervix and the vagina of apparently perfectly normal women. Many who have spontaneous deliveries without examination develop puerperal infection. From 40 to 50 per cent of these cases show streptococci in the birth canal and about 4 per cent show that of the hemolytic type. Another explanation is the carrying of the organism through the lymphatics and the blood stream from some source of focal infection as the teeth, sinuses and intestinal tract. Dr. Victor Bonney reports a case that emphasizes this point very forcibly. The patient was a young woman whom he was called to see on account of puerperal fever

which had followed on the second day a normal, entirely uninterrupted labor, the child and placenta having been born before the doctor arrived. It was the third child and he was informed that both the first and second labors had been followed by high fever and signs of sepsis. On examination Dr. Bonney noticed that although her teeth were perfect her gums were purple and showed marked recession. This condition was a sequela of scarlet fever at the age of thirteen. This had persisted in spite of every treatment except the removal of her teeth, to which she had objected. This attack of puerperal infection proved fatal and it is the belief that it was due to extensive harborage of virulent streptococcal infection around the gums.

If we would check up our cases more carefully I am convinced that we would have a large number of similar cases to report.

I will not burden you with enumerating again the different types of organism that are found in puerperal infection. I would only like to mention the work done by Schottmuller and the recent work done by Otto Schwartz, on isolating the anaerobic organism. In a series of 1913 obstetrical cases Schwartz reported 88 patients with puerperal infection, of which 21 were aerobic, 54 anaerobic, and 8 mixed. I believe that the work of Schottmuller and Schwartz will help greatly in the discovery of an antitoxin or vaccine for the streptococcus type of puerperal infection.

PREVENTION.

The ideal would be to start with the prospective mother. Make a careful examination, giving special attention to the teeth, tonsils, sinuses and intestinal tract (chronic appendicitis, gall bladder disease and colitis.) Next, a gynecological examination to eliminate all infection around the birth canal, such as the cervix (endocervical glands) vagina, (Bartholin's glands and Skene's glands).

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This revives the old subject of medical gynecology. It is my belief that there is too little attention paid to the non-surgical gynecological condition in women.

We should next give our attention to the general health of the patient. A complete blood picture on all cases that show any signs of not being up to par, special attention being given to the estimated hemoglobin and the red blood cell count. All anemic cases should have supportive treatment along the lines of diet, iron and arsenic. I personally prefer to give iron, arsenite and manganese hypodermatically along with tonic doses of the ultra-violet light, bearing in mind the ever present struggle for supremacy between the pathogenic organisms and bodily resistance.

It is rare that we have the opportunity to advise the prospective mother; most cases report to the physician when they are two or three months pregnant. It is my custom to make a routine examination and remove as many sources of local infection as is compatible with pregnancy. Locally I use mild applications to the cervix and vagina to clear the canal of pathogenic organisms. Much can be accomplished by giving the patient written instructions about how to take care of herself, such as advice against taking douches, restricting coitus during the last six or eight weeks, prohibiting tub baths the last two weeks, insisting upon bodily cleanliness and reporting to the physician any unusual discharge. The routine injection of 5 per cent mercurochrome thirty to forty minutes before delivery or examination has been a great factor in lowering my morbidity and, I believe, my mortality. I started using mercurochrome about twelve months ago. In reviewing the literature I find that Mays, of the Methodist Hospital of Brooklyn, first advocated its use in July, 1914, and he reported excellent results. Mercurochrome has several advantages, first, it is non-irritant to the mucous membranes and it is an excellent germicide, easily applied. The

disadvantage is that it stains the clothing and linen, but it is only difficult to remove from silk garments. It has been demonstrated conclusively that mercurochrome must be injected thirty to forty minutes before examination or delivery to obtain its maximum germicidal effect.

After miscarriage, or delivery, I bathe the vaginal vault and the whole vagina with 5 per cent mercurochrome.

The patient should be turned on her abdomen as soon as possible following delivery to facilitate vaginal drainage. The vaginal discharge should be examined daily and type recorded, also the level of the fundus of the uterus or unusual tenderness should be recorded. Often these signs, such as a foul discharge, marked tenderness over the fundus of the uterus, or retarded sub-involution will be noticed before there is an appreciable rise in the temperature.

By elevating the head of the bed twelve to eighteen inches and giving $\frac{1}{2}$ c.c. pituitrin every two hours and ergotol, I believe that many cases of puerperal infection will be avoided. It goes without saying that a careful differential diagnosis should be made first. I have had a number of cases that from the history and casual examination I thought were puerperal infection, one especially that developed malaria during the puerperium; repeated blood examinations cleared up the diagnosis, and another who had pyelo-nephritis but showed few organisms in the urine. The urologist did not think the infection was sufficient to account for the high temperature. Tests finally confirmed the diagnosis of pyelo-nephritis. Deep infection of the breast is also often confused with puerperal infection.

TREATMENT.

Treatment of puerperal infection is divided into two stages: first, the acute, fulminating; second, the convalescent and the quiescent stage. Many cases have been weathered through the acute stage and lost by lack of judgment in dealing with the convalescent and the quiescent stage. Dr.

King reviewed the cases handled at Charity Hospital some years ago. I agree with Dr. King, except where there are retained secundines and persistent loss of small amounts of blood, I prefer to give a short gas anesthesia and completely remove the secundines with a sponge holder and swab the uterine cavity with a sponge saturated in 5 per cent mercurochrome. This may be accomplished without an anesthetic. There are two things accomplished: first, hemostasis; second, where there are infected retained secundines the temperature often subsides quickly. Of course, I condemn the curet 100 per cent in these cases. Elevate the head of the bed and apply ice bags to the lower abdomen. Fluids, food and fresh air are essentials. If the patient is unable to retain large quantities of food by mouth, fluids are given either by hyperdermoclysis or in the vein. I prefer the Matas drip, alternating with 5 per cent glucose and saline, 1000 c.c. each. It is not uncommon to let this drip run three or four days.

Medication plays a very small part in the treatment of puerperal infection. Narcotics are given only to make the patient comfortable except where signs of peritonitis develop, then large doses of morphine are given to keep the respiration to 10 to 12 per minute. In the very toxic cases small transfusions of whole blood should be given (250 to 400 c.c.), repeated twice daily.

Dr. Young has written much about the use of intravenous mercurochrome. I have given it to a number of cases, but do not advocate the large dose that he gives; I generally start off with 10 c.c. of 1 per cent solution, repeated every day until I get up to the maximum; it has apparently helped some of the extreme cases. Dr. Gilhorn is a great advocate of the use of sterile milk. I am sure I have used literally gallons of it. It has the advantage over meruochrome in that it does not produce such a profound reaction. We are still giving it to our convalescent cases. Dr. Oscar W. Bethea recommends the use

of cacodylate of soda three to five grains, intravenously in all septic cases. I have given it to several cases with apparently good results. The advantage is that it does not disturb the patient and is harmless. I have tried several of the streptococcal serums but I am not ready to give a statement as to their merits, although I believe that the laboratories will ultimately solve the problem.

The next point I want to mention, though it is not treatment but so closely allied to it that I think it opportune to mention it here, is frequent examination of the patient, keeping in mind the possibilities of pelvic abscess, arthritis, pyelitis, endocarditis and pneumonia. Many times the pelvic condition will subside and the temperature is kept up by these complications. Of course, pelvic abscess is a common complication of sequela. Vaginal drainage, properly performed, acts almost like magic.

Convalescents constitute the second class. Many women report to the office, gynecological wrecks, giving a history of their trouble starting after a miscarriage or childbirth. Of course, we cannot forget about the gonococcal infection and here we must make a differential diagnosis between gonococcal infection and puerperal. As a rule, the gonococcal cases will clear up after a few weeks in bed, hot douches and ice bags, but this is not always true in puerperal. The puerperal cases should remain in bed as long as they run temperature and then should be observed with the routine orders of hot douches, glycerine and ichthyol tampons.

I do not believe they should be discharged or told to return in 4, 5 or 6 months, but a definite, regular regime of treatment should be outlined for them, just as we do for a case of syphilis.

The following requirements should be met before considering surgery:

1. Normal temperature.
2. Normal blood count.
3. Sedimentation time, one hour or over.

4. Normal temperature for twenty-four hours after a drastic vaginal examination.
5. Marked diminution of pain and tenderness.

Inasmuch as the sedimentation test is not universally used in this section it is probably timely that I say something of its merits as a diagnostic and prognostic test in pelvic infections.

SUMMARY.

We do not believe the sedimentation test should replace the total and differential blood counts where it is practical to run both. But if we had to choose between the two would prefer the sedimentation test on account of its accuracy in all classes of cases and its simplicity. No pelvic inflammatory case with a sedimentation time of less than an hour should be laparotomized. It is preferable that the sedimentation time should be an hour and a half or two hours. Dr. Polak, of Brooklyn, is very enthusiastic over the sedimentation test and is convinced that it is the most dependable test as to the real condition of the patient. We have adopted the Linzemmeier technic, which is as follows: the tubes used are made of hard glass, five mm. in diameter and 6.5 cm. in length, having a capacity of more than 1 c.c. They are marked at the 1 c.c. point and also at the 18 mm. point. Lately the 6, 12 and 24 mm. marks have also been added. These tubes together with a 1 c.c. hypodermic syringe with 0.1 c.c. divisions complete the outfit. It is important that both tubes and syringe be clear and dry. Two-tenths c.c. of a 5 per cent solution of sodium nitrate is drawn into the syringe, to which is added 0.8 c.c. of blood drawn from one of the superficial veins of the arm, making the total contents of the syringe 1 c.c. The blood solution and the citrate solution are slowly mixed and then transferred to the tubes. The marginal level in the tube must be exactly at the 1 c.c. mark. The reactions are tested at room temperature since it has been found that in the incubator the rate of sedimentation

was hastened, while the reverse took place when the patient's stomach is empty; acceleration of the rate may be caused by active digestion. The time is noted when the line of demarcation between the erythrocytes and the plasma reaches the 1 mm. mark. A millimetre reading may also be taken at the end of the first hour. With blood therefore that sediments rapidly the results can be ascertained in a short time.

DISCUSSION.

Dr. A. Jacobs (New Orleans): I would like to say a few words concerning prophylactic treatment in puerperal infection, also regarding treatment of the cervix. Many women have a slightly eroded cervix and after delivery, when there is an accumulation or discharge from the uterus this mixes with the acid vaginal secretions and the exposed injured mucosa becomes infected with consequent toxic absorption and high temperature. In a great number of cases I have avoided infection by promoting free drainage; this is effected by merely elevating the head of the bed and turning the patient on her abdomen.

In the pre-partal treatment of these cases I do a light cauterization, not of the endocervix, but just over the lip, with 10 per cent silver nitrate or a very light cauterization with the actual cautery (never deep), which sometimes it is necessary to repeat. If you are light on the cautery there will be no precipitation of labor.

Just a few words about intravenous infusion. Dr. Miller of Indiana, who has treated several thousand of these cases, employing various therapies such as aniline dyes, colloidal substances, foreign proteins, the small transfusion of whole blood, etc., finds that the best results are obtained by repeated small transfusions of blood.

I do not agree with Dr. Sellers on the question of removal of retained secundines. The only time that we are allowed to enter the uterine cavity, I think, is in the case of profuse hemorrhage: intrauterine manipulation merely opens up avenues for the invasion and harboring of microorganisms. I believe these cases should be resuscitated and given pituitrin and ergot.

I am very much interested in the sedimentation test and glad Dr. Sellers mentioned it to you, particularly those who are gynecologists and obstetricians. The test is easily done and is of inestimable value in determining the presence of infection and enabling us to get a safe time for operation. If infection is present the sedimentation test will be rapid. We all know that it is possible to have quite a considerable inflammatory reaction in the pelvis without increase in

temperature or a high leukocyte count: in this event the sedimentation test is rapid and if you disregard its warning you will have either a very stormy convalescence or death. I have used the test for four years—in fact, use it routinely in all my cases. In the beginning I disregarded it, depending on the tests on which I had previously relied, viz: normal leukocytes and a lack of rise in temperature after one or two bimanual examinations.

Dr. L. A. LeDoux (New Orleans): In the majority of cases of puerperal infection we find evidence of an injury, or laceration of the vaginal fornix, or in the cervix. The blood supply of the uterus is very profuse, particularly at the base of the broad ligaments and cervix and pathogenic organisms enter the blood stream through these lacerations. The uterus, under ordinary conditions, is resistant to infection. If we check our normal cases against those with lacerations we will find the incidence of infection higher in the latter. Repairs following labor go a long way towards diminishing infection, so it is a wise procedure to insert a speculum in the cervical canal after delivery and repair all lacerations. By closing the door against invasion of bacteria we minimize the chances of infection and assist in preventing extension.

This subject is interestingly dealt with in a recent issue of "The Lancet." In London Obstetrical and Maternity Hospitals and in French Hospitals they are attempting to immunize patients before delivery with mixed streptococcal vaccine; it is believed that in this way a certain amount of immunity can be given these patients.

Dr. A. J. Comeaux, (Youngsville): I agree with Dr. LeDoux in regard to the way infection travels in a lacerated cervix and wish to mention two cases which I treated along the lines he suggests.

I delivered a woman and three or four days afterwards she developed chills and fever; the next day the same thing occurred. On the second day I inserted a speculum and swabbed the cervix with iodine. The following morning she still had fever. The treatment was repeated. In the afternoon another physician was called in consultation and I told him what I had done. He diagnosed the case as infection and very severely condemned the treatment with iodine. He was an older man and I said nothing to him, but thought: "I will show you something old man." He told my patient, whom he knew: "Elaine, you are going to be sick about six weeks, possibly more, I cannot say how long, but you will get well." I kept the case and the next morning her husband, who came in to report on her condition, said: "Doctor, my wife is doing well and is

without fever." From that time she was absolutely afebrile.

Previous to this, I had another case which was handled in the same manner and with the same success. I believe that we would have fewer infections if an antiseptic, either mercurochrome, carbolic acid, or nitrate of silver was applied to the cervix after delivery.

Dr. Joseph Cohen (New Orleans): In reference to puerperal sepsis, I would like to emphasize a couple of points. A good many women will develop puerperal infection no matter what is done for them. As a rule most obstetricians take all kinds of aseptic precautions, whether the delivery is at home or in an institution. This condition is the result of something inherent in the patient. An obstetrician may employ the same method in a hundred cases and despite the most careful asepsis, of these a certain number will develop puerperal infection. To illustrate this, Dr. Bendel told me of an obstetrical case he had in the country. Called out hurriedly, he rushed to the house on horseback and delivered the patient without taking time to wash his hands. She had an uneventful puerperium.

I agree with Dr. Jacobs that in these cases cleaning out the uterus is contraindicated. We should look upon the uterus as "no man's land," something to be let alone. Taking out retained secundines opens up new avenues of infection; the removal of the endometrium simply creates fresh bleeding points.

Repairing lacerations is like "closing the stable door after the horse has left"—they might as well be left alone. Many patients have elevated temperature a few days after delivery and get well spontaneously. We should not blame ourselves too much for the puerperal infection some of our patients get, but in the meanwhile let us continue to do our best to asepticize and employ the means at our disposal to safeguard against it. Perhaps vaccine, pre-delivery, will help.

Dr. T. B. Sellers (closing): I thank the doctors who have discussed my paper.

The comments of Drs. Jacobs and Cohen in regard to the removal of retained secundines are in accord with the opinions voiced by many of the best authorities. Despite opinion to the contrary, however, I recommend, in some of these cases, removal of the products of pregnancy with a sponge holding forceps: if this is done gently I do not think there is ever any ill result therefrom. I have had many cases where this procedure was followed by an immediate drop in temperature and in my experience I know of no instance where the trouble could be attributed to this measure. I do not advocate it though as a routine practice.

UTERINE HEMORRHAGES AND THEIR SIGNIFICANCE.*

O. P. DALY, M. D.,

LAFAYETTE, LA.

The object of this paper is not necessarily to bring anything new before you but rather to present a subject which is of great interest to every practicing physician, and is, I believe, of very great importance because of the artificial conditions under which we are living, and more particularly because of the great incidence of cancer.

The presentation of this paper will be from the standpoint of what we can do for these conditions in the way of treating them as general practitioners, or just what can be expected in results from those cases referred to the specialist.

The causes of uterine hemorrhage fall into two main groups: Those which are, and those which are not connected with recent pregnancy. For clinical purposes, cases of uterine hemorrhages fall into the following three groups:

First: The menstrual periods are regular but prolonged and excessive in amount, commonly called menorrhagia. This is most commonly found in cases of fibroids, hypertrophy of the endometrium, chronic metritis, etc.

Second: The bleeding is irregular and excessive at times other than the menstrual period, commonly called metrorrhagia, this always should call your immediate attention to the possibility of malignant disease; such as carcinoma of the cervix, more rarely of the body of the uterus.

Third: Hemorrhages occurring at some period subsequent to the menopause possibly in small amounts. This always suggests malignancy. Statistics show that malignancy accounts for over 50 per cent of all hemorrhages after the menopause.

Menorrhagia may be due to excessive ovarian impulse, to an enlargement of the uterine area which responds to the ovarian impulse and to local or general conditions which cause congestion of the blood vessel of the uterus, or endometrium; such as pelvic inflammations, acute nephritis, etc.

Menorrhagia in young girls, adolescent hemorrhage, often presents a difficult problem. This is often caused by excessive ovarian impulse and here we run into the realm of theory when we begin to use extracts from the endocrine glands. We know that in some cases of hyperthyroidism menorrhagia disappears when the thyroid condition is corrected, and likewise, cases are improved sometimes by administering thyroid extract to cases of hypothyroidism. Also we know the effects of pituitary extract on the musculature of the uterus. Pituitrin is used in such cases. It is rational to use a glandular extract in these cases, but do not be surprised if your results are not always the same and do not be disappointed at your failures.

For a number of years dilatation of the cervix with curettage of the uterus was the court of last appeals in these cases, and many were definitely cured and still are being cured by this method. In latter years first the roentgen-ray and now radium have stepped into the breach and we now have at hand, two modalities which hold out a helping hand to us. In young girls and women before the menopause too much care cannot be used in the application of either the roentgen-ray or radium, or else a permanent premature menopause will be brought about and this is to be avoided in these cases. I will not attempt here to discuss the relative merits of radium or roentgen-ray or whether one causes more damage to the ovary than the other. Rightly used both can be of great help in very difficult cases and carelessly used, both are a source of great danger. This is most forceably brought home to me right now as I have recently inherited one

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vesico-vaginal and one recto-vaginal fistula caused from the use of radium.

An amenorrhea of two or three months followed by normal menstruation may be of great benefit to these patients, and will often be followed by normal sex function. Treatment of all these cases should be based on a careful history, and one must be careful not to overlook a general condition of which the menorrhagia may be only a part of the picture.

In the case of menorrhagia where the bleeding is excessive or irregular, the most likely cause is some innocent condition such as: uterine-fibroids, hypertrophy of the endometrium, chronic metritis and endometritis. It has been stated that over 20 per cent of all women have sooner or later a fibroid tumor of the uterus. In many instances the tumors are small and cause no symptoms; nevertheless operations for fibroids form a large proportions of all gynecological operations. The diagnosis rests on a history of menorrhagia, with an irregular enlargement of the uterus. If, however, there be but one small fibroid polyp in the uterus, the increase in the size of the uterus may not be sufficient to be detected by bimanual examination and the diagnosis may be tentative until confirmed by dilatation of the cervix and exploration of the uterine cavity. For fibroids, operative treatment is nearly always the best whenever advice is sought for bleeding or for a lump or for pain. Pain is an infrequent symptom, but may be caused by pressure or red degeneration. During the child-bearing years myomectomy is the operation of choice when the tumor is of such character that a useful uterus can be left. But during later years, hysterectomy should be done, which is a straight-forward and safe operation removing from the patient, who has finished with child-bearing, an organ which may often give rise at any time to discharge or bleeding or which may become affected with malignant disease. Fibroids do not cease to cause symptoms after the menopause but often

delay or prevent it. The treatment of fibroids by radium or roentgen-ray, to my mind, is not to be advised unless there is some reason which would render the operation too dangerous for the patient. Though, neither roentgen-ray nor radium can disperse the tumor they may cause degeneration and subsequent, sepsis and there is always a chance that the tumor may be associated with carcinoma of the body of the uterus, or that it may be a sarcoma.

Bleedings during pregnancy are almost always preceded by a varying period of amenorrhea. In the early months, the most frequent cause is threatened abortion. There is little reason to comment on handling these cases, this is a matter of everyday occurrence to all of you. Ectopic pregnancy is next among the causes of irregular hemorrhages due to the pregnant state. A larger number of ectopic pregnancies take place than is generally supposed. Many of these embryos die in the early stages without giving rise to anything of much note except a metorrhagia of small amount. Briefly, the symptoms of ectopic gestation are as follows. A missed, delayed or irregular menstrual period followed by pain in lower abdomen, colic in character most often to one side. On vaginal examination a bloody discharge mixed with mucus which does not clot is observed. The cervix is usually soft, sensitive to motion, the uterus usually displaced by a sensitive mass which is usually palpable. Temperature as a rule is only slightly affected. The blood count showing a slight leukocytosis. The red cells and hemoglobin may be slightly or very markedly reduced depending on the amount of blood lost. Needless to say, the indication for treatment in cases of ectopic gestation is to operate as soon as the diagnosis is made and the patient in condition to stand an operation. During the latter months of pregnancy placenta previa and ablatio placentae are causes of hemorrhages. These cases must each be dealt with as a separate case.

Carcinoma of the cervix is very common. It is therefore the accepted rule that any and every woman who complains of any excessive, irregular bleeding at the time of menopause, and all cases of bleeding or discharge after the menopause must be regarded as a probable malignancy case, and carefully examined as such. If there be no palpable or visible sign of carcinoma of the cervix, there still remains a possibility of involvement of the cervical canal, or of the body of the uterus. It must be remembered that whereas before the menopause and the age of 45, cancer of the cervix is twenty times more probable than cancer of the body. As the age of 50 is reached the probability of cancer of the body becomes nearly equal to that of involvement of the cervix. Examination in these cases may necessitate a careful examination under an anaesthetic with dilatation and exploration of the cervical canal and body of the uterus, and the scrapings from the curett or specimen removed by the knife examined under the microscope. The importance of diagnosis and treatment at the earliest moment cannot be too much emphasized; as we must always remember that we see two inoperable cancers of the uterus to one which is operable. The best treatment of cancer of the cervix is operation. Removing the whole uterus with a cuff of vagina, as freely as possible with the cellular tissue around the cervix and the iliac glands. In skilled hands, the results are good, about 40 per cent of the cases are cured and free from recurrence after five years. The primary mortality is comparatively low and patients who suffer a recurrence have a period of from one to five years free from pain, even from discomfort. And the terminal stages are characterized by a general debility rather than the awful bleeding and foul discharge when no operation has been performed. The radical operation is undoubtedly the best treatment so long as the condition is operable. Treatment by radium still does not compare favorably with it and as a curative agent must take second place.

As an adjuvant, or in the treatment of inoperable cases or for early recurrence after operation radium is of great use and will often lengthen and make much more bearable the lives of our hopeless cases.

What are the early symptoms of uterine cancer? Text books mention them in the following order:

First: Hemorrhage. Second: Profuse foul watery leukorrhea and Third: Pain. Now these are signs not only of cancer but of incurable cancer or indeed of impending death for the reason, that when a patient presents all three of these dangerous signals, she is rarely cured. Uterine cancer under microscopic examination, materializes as alteration of a single epithelial cell. When this tiny lesion progresses even a little, its presence is manifested by the appearance by nothing more startling than a slight, insignificant, brownish or blood-tinged discoloration of the normal cervical secretions, and this discoloration of the secretion is the one and only early symptom of an incipient uterine cancer. Your diagnosis must be confirmed by the microscope. The importance and significance of this point cannot be over-estimated, nor over-emphasized because, within six months from the appearance of such slight showing of blood, in the case of one third of the unfortunate victims, the disease has gone beyond a curable stage. Martzloffs study of the series of cases seen during the first six months of the disease in the John Hopkins Hospital Clinic brought out the startling fact that exclusive of the most benign type of cervical cancer, two-thirds of all patients had broad ligament involvement; and the more startling fact that not a single patient with an involvement of the broad ligament, however slight, was cured by operation. As to the variable degrees of malignancy in cancer of the cervix, Martzloff was able to show variation in five year cures of the astonishing figure of 37.5 per cent between the most benign and the most malignant cell types. Obviously a comparison of r

ults of treatment of 1000 cases treated by one method, surgery for instance, with another 1000 cases treated by another method, radium for instance, would be almost futile in the face of these findings of nearly 40 per cent difference of the degree of malignancy.

CONCLUSION.

The inescapable conclusion to be drawn from all the facts and all the evidence is to the effect that abnormal uterine bleeding, however trivial in amount, occurring at any period of life from early adolescence to the last day of old age, means cancer, until its existence is absolutely and finally disproved by every means within reach of the physician to whose attention it has been brought.

DISCUSSION.

Dr. Joseph Cohen (New Orleans): On the subject of uterine hemorrhages I take exception to some of the statements that are made. There is absolutely no doubt in my mind between the results obtained by surgery and those by radium. At the Memorial Hospital, New York, both methods were used. Dr. Burton Lee, attending physician, came out with the statement that these are purely cases for radium treatment, the results being far better with radium than where surgery is used. At the Cancer Symposium at Lake Monkonk, New York, convened by the American Society for the Control of Cancer, Dr. Greenbough reported 243 cases coming from 22 different clinics, some of which were treated by radium, some by radical operation (I suppose that is the word I must use). Of the cases operated on some died, the mortality being one in five, the cures after following up three years were 1 out of every 3; in those cases treated by radium there were no mortalities, the cures 1 out of 5. In other words, radium never gives you a death, while surgery (radical operation) does.

In uterine bleeding it is absolutely necessary, in order to arrive at a diagnosis, to get a pathologist's report on the uterine scrapings—if it is at all possible, do biopsy. Radium after the menopause does no harm if it is used, unless the patient develops a recto-vaginal fistula or vesico-vaginal fistula. In the child-bearing period radium should not be used promiscuously for two reasons: in the first place it might produce menopause with all its attending symptoms; in the second place, which is very, very important, it might affect the progeny. Radium has an effect on the ovar-

ies even though given in small doses and if, during the child-bearing period the ovaries are affected, how do you know what will happen to the child? There is so much being done in radium application with animals to see what happens to the offspring. Dr. Clarence Cook Little in a paper read last year indicated that radium affects the offspring. Radio active substances have direct effect on the sex cells. There is danger that the promiscuous use during the child bearing period will result in a lot of imbeciles and idiots. This has not been proven yet since all the experimental work has been done on animals. The offspring of animals subjected to radium were deformed or showed malformations in other manners. We can take care of physical evident deformities all right, but with the use of radium promiscuously in the child-bearing period we may have occult brain malformations and mental twists in our progeny that can not be taken care of.

Dr. Lucien A. LeDoux, (New Orleans): The discussion of uterine hemorrhage is incomplete without emphasizing the part played by pelvic inflammations, the acute, subacute and chronic. Dr. Daly emphasizes throughout his paper the necessity for a careful history and thorough physical examination leading up to diagnosis. In this connection I wish to protest against the prescribing of drugs which are supposed to accelerate or diminish uterine bleeding without first determining the cause. Drugs of this character, while calculated possibly to assist ovarian hyper or hypo-function can be of absolutely no value at all in controlling the metrorrhagias or menorrhagias which accompany pelvic inflammations. Therefore before employing an agent to suppress this condition, let us look carefully into our case and establish a diagnosis if possible, then use the proper means to eliminate the cause.

Dr. E. Denegre Martin (New Orleans): I am not a gynecologist, but would like to say a few words on this subject. Dr. Daly in mentioning growths as a cause of uterine hemorrhage left out a most important one, uterine polypus, which is frequently responsible for this condition. I have had more cases of metrorrhagia and menorrhagia from this cause than any other, and it happens at all times of life. Polypoid growths can be cured by cureting if in the child-bearing period of menopause, but the ideal treatment, I think, when it can be done, is curettment and the application of radium. If radium is not applied, there is apt to be a recurrence. When submucous fibroids are responsible for the bleeding, I have had the best results with radium. As Dr. Cohen says, in treating carcinoma of the cervix, the earlier it is recognized, the better the result.

Radium should never be used by the inexperienced, but by those who know how to apply it, otherwise we are going to meet with some of the distressing sequelae that we sometimes hear about.

Dr. T. B. Sellers (New Orleans): I would like to call your attention to another common cause of uterine bleeding. This was forcibly impressed upon me two years ago. A widow, well developed, poorly nourished and anemic, gave absolutely negative history of syphilis. Physical examination, negative. Gynecological examination, also negative (uterus freely movable, about normal in size.) A routine blood Wassermann returned plus 4. This patient had been examined by two excellent physicians. She was sent to me "for radium treatment.

Dr. H. W. Kostmayer (New Orleans): There is one point in Dr. Daly's paper that ought to be called a little more attention to, and that is the importance of carefully examining the membrane for the possibility of carcinoma of the uterus being present, for it is in the mucous membrane that the growth originates. This leads to the point that I want to make, that the application of radium generally should not be made for uterine hemorrhage, but a definite known cause of uterine hemorrhage. Carcinoma of the body of the uterus calls for surgery, in contrast to carcinoma of the cervix in which radium is the indicated and generally accepted therapy, except in the very early stage. I cannot too strongly emphasize the importance, in dealing with uterine hemorrhage, of the physician determining the cause before applying radium, in order to do his patient complete justice.

Dr. O. P. Daly (closing): I fully realize the merits of the points just brought out in the treatment of carcinoma of the cervix by radium, a therapy which is making greater and greater strides everywhere. I do not believe that the last word has been spoken so far in the question of radium and surgery in carcinoma of the uterus if the carcinoma is taken in its early stage, but am convinced that when it has progressed to any degree, radium is unquestionably the method of choice. In carcinoma of the body, I agree with Dr. Kostmayer that it is a surgical procedure and not necessarily one for the use of radium. I emphasized the fact that artificial menopause was to be avoided at all costs. In regard to the effect of irradiation on the ovaries, roentgen-rays used in the case of a pregnant woman, our literature is filled with recent contributions on the subject. Whether radium has an injurious effect on future offsprings is a question still open to quite a bit of discussion, and I do not believe that, so far, it has been proved injurious; the data on this mat-

ter is not complete, and different people report different things.

Dr. LeDoux spoke of pelvic inflammations as a cause of uterine hemorrhage, and Dr. Martin of uterine polyps; I mentioned both in my paper and stated that the polyps were sometimes of such small size that they were not recognized. In regard to Dr. Sellers speaking of syphilis, this was not included in the list. Limited to twenty minutes, one has not time to cover all the causes of uterine bleeding—their name is legion. Dr. Kostmayer stressed the importance of thorough examination before the use of radium, and I think he is absolutely correct. It necessarily follows that if we give as careful an examination as is in our power, we will overlook less than we have been overlooking and be in a position to obtain the best results from treatment.

Time is the greatest factor in the treatment of cancer, and when too long a period has elapsed before malignancy is discovered, all the therapies at our disposal are powerless to effect a cure.

PLACENTA PRAEVIA.*

JOHN FAIR LUCAS, M. D.,

GREENVILLE, MISS.

Placenta praevia is a formidable complication of the later months of pregnancy, and constitutes a large number of our obstetrical tragedies. Although not so frequent a complication as premature separation of the placenta, it is just as much an emergency, creating apprehension in the mind of the patient and members of her family as well as demanding the immediate attention of the physician.

There has been a large amount of literature upon this subject during the past few years and it is my purpose today to discuss briefly the history, etiology, anatomy and diagnosis of this condition, and to dwell more extensively upon the management of these cases.

As we know, placenta praevia is the development of the placenta in part or wholly within the zone of dilatation of the uterus. The condition was known in Hippocrates' time. Paul Portal in 1664 stated that the placenta may be implanted over the os.

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Rigby in 1775 was the first to clearly differentiate between placenta praevia and premature separation of the placenta, and Schaller was the first to demonstrate at the autopsy table the attachment of the placenta over the internal os.

Its frequency is variously reported by various writers as ranging from one in a hundred to one in a thousand cases. Surely one doing almost entirely hospital practice will encounter the condition more often than the general practitioner, because these cases are sent to the hospital as soon as the hemorrhage takes place. It occurs more often in multipara who have had a previous endometritis, as the diseased endometrium is thought to prevent the ovum from attaching itself higher in the uterus.

The cases are divided anatomically into three varieties depending on the position of the placenta in relation to the internal os and lower uterine segment. (1) *Centralis*—when the placenta completely covers the internal os. (2) *Lateralis*—in which it but partly covers the os. (3) *Marginalis*—in which the placenta which implanted wholly or partly in the lower uterine segment, does not extend beyond the border of the internal os.

The most characteristic, and usually the only, symptom is sudden, painless hemorrhage with apparently no cause assignable to the patient, who may wake up and find herself in a pool of blood or notice on arising from the toilet fresh blood or clots in the vessel. The initial bleeding may be slight but the slightest bloody discharge demands investigation for the bleeding will recur when least expected, often as an acute hemorrhage which may end fatally or as a continuous slight discharge which will so weaken the patient that with added blood loss and shock of delivery may bring about a fatal termination.

The diagnosis may be confirmed by vaginal examination, which reveals a large, boggy and edematous cervix, and on passing the finger through the cervix a soft

cauliflower-like mass is felt between the finger and presenting part. Often the pulsation of the uterine arteries can be felt through the vaginal fornices. It is best to reserve this examination until the patient is placed in the hospital and everything is ready to deliver the patient, as often a profuse hemorrhage may be started.

The maternal mortality in this condition is due almost entirely to, first, antepartum hemorrhage, second to sepsis, and third, post-partum hemorrhage, the latter accounting for over half the deaths reported. Very seldom does a death occur in a case undelivered, and in which no intra-uterine manipulation has been performed. In reading over case reports of different hospitals one cannot but notice the number of deaths that occur within a few hours after delivery, which is attributed to hemorrhage due either to continued bleeding from the placenta site or from atony of the uterus. Thus the management of placenta praevia is principally the treatment of hemorrhage. The indications are: first, to replace the blood loss, and second to deliver the patient as soon as she is in condition to stand delivery. This should be done with the least amount of blood loss, shock, and trauma, and by a method that is least likely to be followed by post-partum hemorrhage which is the cause of over half the deaths due to placenta praevia.

If a woman has had a profuse hemorrhage, and has a rapid weak pulse and is in a state of shock, the added blood loss and shock from any method of delivery may be too much for her to stand. Bill, in an article in the October, 1927, *Journal of Obstetrics and Gynecology*, stressed this point and emphasized the fact that the loss of blood may be sufficient to cause atony of the uterus, while the atony causes further hemorrhage, thus a definite vicious circle may be established. He states that such a uterus will not respond to drug stimulation, and the only hope of breaking the vicious circle lies in blood transfusion.

It is our practice to type every available member of the patient's family as soon as

she is admitted to the hospital, and if she is not in condition to withstand immediate delivery, a blood transfusion is given while the nurses are setting up the operating room. We believe that the restoration of blood loss by these patients is almost as important as the immediate delivery.

In regard to the method of delivery, there are three basic principles to be considered: (1) Conserve blood loss. (2) Avoid sepsis, and (3) Minimize trauma and shock. We believe these principles are best carried out in the majority of cases by Caesarian section, where there has been no previous attempt at vaginal delivery and where the cervix is not dilated. If the cervix is left undisturbed continued bleeding from the placental site is prevented.

In delivery through the pelvis the placental site on the non-contractile lower uterine segment is stretched and traumatized, often deep tears occurring in the cervix, which is not seldom the cause of uncontrollable post-partum hemorrhage. This type of hemorrhage does not occur when the patient is delivered by section and the lower uterine segment left undisturbed. Bleeding from the uterus during the operation is under perfect control, as the assistant makes pressure on the lower uterine segment, until the uterus contracts and bleeding has ceased.

The use of spinal anesthesia we believe gives us better contraction of the uterus by blocking the spinal nerves and allowing the uninhibited action of the sympathetic system.

There is much less shock and trauma to Caesarian section than to long drawn out delivery through the pelvis and certainly there is less danger of infection or sepsis following a section on a case that has had no intrauterine manipulation than when delivery is effected through the pelvis by version or use of the bag, for in the latter case we are working through an already infected field or one very difficult to render aseptic. The lacerated and traumatized cervix and exposed placental site is very prone to in-

fection, and may be followed by puerperal sepsis.

During the past two years we have had four cases in our clinic in Greenville, two occurring in our private practice, and two referred to us for treatment. The case histories are briefly as follows:

Case 1: Mrs. H. S. Multipara, seven and one-half months pregnant, admitted at 5 a. m., 10/10/26, following a painless hemorrhage. R. B. C. 4,200,000, Hemoglobin 70%. Cervix boggy and placenta could be felt in lower uterine segment. Practically no dilatation. Diagnosis *Placenta Praevia Centralis*. Caesarian Section under ether anesthesia. Live baby. No post-partum hemorrhage. Both mother and baby discharged well on the sixteenth day.

Case 2: Mrs. P. D. Multipara, seven months pregnant, admitted to the hospital at 4 a. m., 7/27/27, following a painless hemorrhage. This stopped but recurred at 9 a. m. Central *placenta praevia*. Cervix admitted two fingers. R. B. C. 3,840,000. Hemoglobin 65 per cent. Caesarian section under spinal anesthesia. Live baby. Both discharged as well on the twenty-third day.

Case 3: Mrs. D. H. M. Multipara, admitted at 5 a. m. on 11/1/27 following a very profuse painless hemorrhage. Unable to count pulse. R. B. C. 2,400,000, hemoglobin 50%. 500 c.c. of blood as transfusion given immediately. Pulse improved, rate 140. Caesarian section under ethylene anesthesia. Partial *placenta praevia*. Live baby. Was given 1000 c.c. of saline subcutaneously during operation. One hour after delivery 500 c.c. of blood given as transfusion. There was no post-partum hemorrhage and the next morning the patient was in good condition and made an uneventful recovery, being discharged on the twenty-second day.

Case 4: Mrs. R. E. K. Multipara. Eight and one-half months pregnant was admitted to the hospital 12/23/27, following a profuse painless hemorrhage. R. B. C. 3,500,000. Hemoglobin 60%. Pulse 120 and rather weak. 500 c.c. of blood given as transfusion. Caesarian section under ethylene anesthesia. Live baby. Partial *placenta praevia*. No post partum hemorrhage. Patient discharged on the twenty-first day.

Two of these cases were delivered before they had lost enough blood to need transfusion, while the other two had bled profusely and were transfused immediately before delivery was effected by Caesarian sec-

tion. One of the later cases was transfused after operation also. There was no post-partum hemorrhage in either case, all four made uncomplicated recoveries and each had a live baby when discharged.

It is not my purpose to advocate section in every case of placenta praevia, for there are some cases that must be delivered in the home, where the physician has very little assistance and equipment. Here it is advisable to use a firm pack in the cervix and vagina, or insert a bag and wait until the cervix is dilated. Then the delivery can be effected by forceps or version, or the patient allowed to deliver herself if progress is being made and the bleeding controlled. Forcible dilatation of the cervix is not to be considered for it cannot be done without causing severe lacerations. A few cases that occur during labor where the cervix is somewhat dilated and with a marginal type, the bleeding may be controlled by simple puncture of the membranes, allowing the head to descend in the pelvis, and compressing the bleeding sinuses. Any method of delivery through the pelvis requires a firm intrauterine and vaginal pack to insure against post-partum bleeding.

CONCLUSIONS

1. Placenta praevia is often a tragic complication of the latter months of pregnancy, and demands early recognition, hospitalization, and immediate termination.

2. Rigid asepsis in the preparation and examination of the patient; preferably no vaginal examination, as a diagnosis is made on the presence of sudden hemorrhage without pain in a woman in the later months of pregnancy.

3. Over half of the mortality is due to post-partum hemorrhage, either from uterine atony, or continued bleeding from the placental site.

4. Transfusions should be done before delivery, so that the patient will be better able to withstand the delivery, and to prevent atony of the uterus.

5. Prompt termination of the pregnancy after restoring the blood loss, by Caesarian section if the cervix is not well dilated. By

this method of delivery we are operating through a clean field, bleeding is under control, and post-partum hemorrhage does not occur.

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DISCUSSION.

Dr. C. F. Patterson (Rosedale): I think Dr. Lucas had a very good paper. Where you have hospital facilities, I think operation is indicated in those cases, but in some localities, three or four miles in the country, the first thing you see is a hemorrhage with blood soaking through the mattress and running on the floor—the patient's pulse is thready and hardly perceptible. What can you do in such cases except sterilize and go to work? I have found that tincture of iodine is fine; just immerse your arms in it and sterilize the local parts of the patient, insert your hand and catch a leg or anything and go ahead and deliver in the regular way. Make traction, if possible. That is about the safest policy out in the country. I have never had an infection following a delivery in this way. I think we should depend on version unless you have a marginal placenta. Sometimes the placenta is marginally attached and sometimes tears through the cervix, and then we can go ahead and give about 3 milligrams of pituitrin, just as indicated and have a normal labor with not enough hemorrhage to hurry the patient in final delivery.

Dr. J. F. Lucas (closing): I thought I was going to get all kinds of discussion both pro and con on this paper. I appreciate Dr. Patterson's discussion, and I agree with him that in the country you have to do certain things you can not do in a hospital, but I believe in the early hospitalization of these patients. The deaths from post-partum hemorrhage will account for over half of the deaths.

PSEUDOCYESIS.*

J. M. BODENHEIMER, M. D.,

SHREVEPORT, LA.

Pseudocyesis, false or spurious pregnancy is a condition which has received but scant notice by the authors of our works on obstetrics and psychiatry. To quote from a lecture by Wilhelm Liepman, Berlin: "A practicing physician who, for the first time sees a typical case of pseudocyesis, will look in vain for information about this very interesting disease in the books of psychiatry and obstetrics". According to Liepmann, Fraenkel is the only German author who treats explicitly this subject in his books, "Normal and Pathologic Sexual physiology of Woman." Our own great authors, DeLee and Williams give the subject only passing mention.

To those of us on the "firing line," so to speak, the problem is one that often taxes our ingenuity to the superlative degree. It is not infrequently a social question fraught with grave consequences. The marital peace is often at stake. In short it is more than a disease; it is a situation that must be handled only with the degree of tact that a background of a long and active clinical experience is capable of sustaining. Pseudocyesis is not confined to old maids and childless matrons approaching the climacteric. Two of the most interesting cases that I wish to report occurred in young matrons, already mothers and women of a high order of intelligence.

That similar conditions occur amongst the lower animals is well attested by the testimony of numerous observers.

T. H. A. Marshall writing on the proestrus and pseudo-pregnancy has given us a profound study of the physiology of this, to me, most interesting subject. According to Heape (1900) the estrus or heat cycle is divided into four phases viz. 1. The anestrus or period of rest. 2. The proes-

trum, or period of coming on heat, during which is a typical growth and congestion of the generative organs, followed by a sanguineo mucus discharge. 3. Estrus or, period of desire.

Metoestrum, which occurs only in the absence of pregnancy, during which the generative organs subside to a condition of quiescence. This division applies to monoestrous animals (as the bitch) that is those animals with only one heat period in the sexual season. Among polyoestrous animals (such as the mare, cow, ewe and sow) there are in the absence of the male a number of heat periods within the sexual season with short intervals of rest which cycle Heap has given the term dioestrus which is probably homologous with the menstrual cycle of women.

More recent investigations have lead to the necessity of revising the scheme of the estrus cycle and it has been shown that both the long and short cycles of change are affected by ovarian activities. It is now known that in the bitch (a typical monoestrous mammal), whereas there is a proestrus and a well defined estrus, the latter period in the nonoccurrence of pregnancy is succeeded by a period of the development of the corpus luteum, growth of the uterus and mammary glands, and that this period is almost as long as pregnancy. Its termination is marked by regressive changes in the uterus with some hemorrhage and the formation of milk in the mammary glands (Marshall and Halman). Other animals experiencing pseudo-pregnancy in non-occurrence of gestation are the cat (Hill and O'Donoghue) opossum (Hartman), and the rabbit (Hammond and Marshall). In the rabbit and cat in which ovulation occurs ordinarily only with coitus pseudo-pregnancy has been induced as a result of intercourse with vasectomized males. Marshall succeeded in producing this pheonomena in two cats in which there was mammary growth followed by milk secretion lasting three weeks. Richard Kantorowicz, a well known Ger-

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man veterinarian has observed this condition often in young pet dogs. The mammary increased in size and milk occurred in such quantities that the animals removed it by sucking. Psychically, the animals appeared morose, and act as they usually do before giving birth to a litter. To quote this observer further, not infrequently somatic manifestations are seen such as increase in size of abdomen, broadening of the backs and clumsiness of the gait.

For an explanation of all these most interesting manifestations we must go to the psychologist. He has divided the female psyche or soul in animals and man into three subdivision which he has classified under the law of inhibition, the law of vulnerability and the law of pansexualism. These he has grouped under the law of the "Three-fold Cause".

The effect of the law of the three-fold cause may be divided, as in all psychogenic diseases of women, into a three-fold phrase of origin. The first phase, which is subject to the conscious will, is the conscious wish or fear to have a child. Continuous impulses of this kind produce the cessation of menstruation, and by this cessation retrogradually new impulses of the victorious will cause new enforcements of the originally affected thought.

The second phase proceeds gradually from the conscious to the unconscious. As in sport, to use the excellent example of Kretschmer; at first consciously a balance, an extremely complicated coordination of muscles, is maintained and then gradually the stage of unconscious ability enters, in the same manner the conscious thought disappears by and by, and the second unconscious, self conscious hypobul (Kretschmer) stage results. The continuous impulses which inhibited menstruation unconsciously relieve primitive stimuli on the mammary glands (milk) on the genitals and on the whole abdomen, bloating the intestines and anatomically simulating pregnancy.

In the third phase the pelvic tract functions automatically, like a reflex apparatus, corresponding to the reflexes described by Pavlov and studied in their relation to gynecology by Walthard.

Pseudocyesis may be divided into two great groups: In the first group the impulses come from the outside as in bitches. A wrong diagnosis by a doctor has found fertile ground in the amenorrhoeic woman. In the second group the impulses come from the woman, herself. Mostly they are desires, less frequent fears which become fixed and cause the multitude of organic changes.

The bruits, the percussion of the intestines against the abdomen wall simulating fetal movements, the organic changes all disappear if we succeed in convincing the woman that pregnancy does not exist. On the contrary they will go on after they are transformed into a paranoid idea, as has been observed by one of my friends who has a patient who still insists after one and a half years that she is pregnant.

CASE REPORTS.

The two cases that I wish to report briefly occurred within a short time within my practice and illustrate the two phases of this most interesting phenomenon.

The first case in a lady thirty years of age, the mother of one child. She represents the extreme neurotic type, in that although a woman of high intelligence, she is very susceptible to suggestion; anxiety neurosis is very manifest at times. She is healthy and menstruates regularly, though no profusely. Her husband had been using the condom to prevent conception. An accident occurred. Immediately she became imbued with the conviction that she was pregnant. Nausea and vomiting became so severe that it was necessary to confine her to bed under the care of a trained nurse. Later she increased in weight, became broader at the hips, her breasts showed the usual signs of pregnancy. After careful examination she

was informed that she was not pregnant. She insisted that she could not face her friends without an alibi. A day was arranged for a pseudo-abortion. On the appointed day, the stage having been set, she promptly began to menstruate, for the first time in eight months and actually began to have intense pains simulating labor. Upon my arrival I was shown something she had passed, which upon examination proved to be a perfect cast of the inside of the womb. The patient soon after returned to normal and has since continued to menstruate regularly.

The second case represents an example of the impulse from within. A well developed young matron 25 years of age, menstruates always very irregular since girlhood. She conceived for the first time about one year after marriage with pregnancy uneventful and this woman, the only girl in the family, had always had her way. Her every desire had always been fulfilled. When she decided to have another child, she presented herself at my office with the information that she was pregnant again. Although she refused to permit an examination, she brought her urine to the office regularly and had the blood pressure taken. On the date that she had fixed as the time for delivery, she called me up and informed me that she had just noticed a bloody discharge, but that she was having no pains. A short while later I saw her, at which time she allowed me to examine her. When I informed her that she was not pregnant, she became indignant and averred that she had felt movements of the child. This woman has since borne children.

Before closing, I wish to report one more case.

When I was a student at the Charity Hospital some 20 odd years ago, I brought in a woman on the ambulance who appeared to me to be in labor, I called the House Surgeon after I had examined her as I could not understand the situation.

When he looked at the woman, he laughed and informed me that she had been brought in several times before with the same diagnosis, but that a hysterectomy had been done on her several years previous. For all I know the students down there are still bringing her in at periodic intervals.

TREATMENT OF LUNG ABSCESSES

S. H. HAIRSTON, M. D.,

MERIDIAN, MISS.

Lung abscess is a very serious condition. It is far more serious than empyema, or any other kind of infection of the lung. Empyema and other kinds of infection usually follow lobar pneumonia, but a lung abscess rarely results from pneumonia. In a series of cases examined in some of the hospitals of the country, it was found that the pneumococcus played a very small part in the formation of lung abscesses. Lung abscess usually arises from some focal infection either in the tonsils or about the sinuses, the limbs or somewhere else; so that we do not get the infection that we get in pneumonia. The onset is not as rapid as pneumonia. It is very rare that it begins with a chill and high fever as pneumonia does, but the onset of the disease is rather a slow process, and often the patient is sick two or three weeks, or a month before a diagnosis can be made.

The Physical Signs. There has been no change in the physical signs, or in the method of examination of these cases in the past 15 or 20 years. All of the physical signs are laid down in text books and you can read them. The cough is often a very harassing one that is almost pathognomonic of lung abscess. The cough is so distressing that sleep cannot be obtained except under the influence of an opiate.

Continuous Fever. Many cases have been diagnosed as tuberculosis, and not until you make thorough study will you find the true pathology in the lung.

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The Source. The infection passes first through the blood stream, particularly where the site of primary infection is in the lower limbs. I had one case with a nail puncture in the foot that finally developed into a lung abscess. The infection may arise from the tonsils, sinuses, or any other part of the body. It is carried in the blood stream and the embolus lodges in the lung and pus develops therefrom.

Lymphatic Sepsis. Infection in the lung and elsewhere may be carried by the lymphatics from distant foci. A fractured rib, a gunshot wound or traumatism by a foreign body introduced into the lung may cause abscess.

Direct Extension. Following tonsillectomy the patient may inhale blood and infection follows. On a recent visit to Philadelphia I saw perhaps 50 or 75 cases in Dr. Jackson's Clinic, and at least 80 per cent of these cases followed tonsillectomy. I have been here about 25 years; and I do not remember seeing but one case of lung abscess following a tonsil operation. Jackson claims that it is due to electrically driven motors, but I can not agree with him, although I do not put up my opinion against his. It seems to me that if you have a good suction machine, and if the ether vapor you lessen your chances of infection from that source.

New Growths. We often have neoplasms of the lung—carcinoma, sarcoma and other tumors pressing upon the tissue and interfering with the circulation of the lung, predisposing to a secondary infection and abscess.

DIAGNOSIS.

Physical Examination. The physical examination is of the greatest importance. A good history and a thorough physical examination will enable you to map out the disease almost without any further aid.

Aspiration. I mention this only to condemn it. I think that aspiration for lung abscess is not good practice. I do not think it is good practice in the hands of an expert, because there is no telling how much

damage you are going to do probing about in the lung looking for an abscess. You may have a hemorrhage in the lung, and may set up more adhesions than you already have.

Roentgen-ray. About the only thing that is of any real value is the roentgen-ray, both fluoroscope and plate. In order to get a good localization of the lung abscess it is necessary in all cases to have a stereogram. In that way you can locate each abscess. If you have an expert roentgenologist he can locate these abscesses exactly without aspiration or anything of that kind.

The time is at hand when with electricity all over the country there will be a roentgen-ray machine in most every little town. You do not have to be an expert roentgenologist to differentiate between a lung abscess and empyema, or to tell whether the lung is perfectly clear or not.

TREATMENT.

There is a medical treatment, bronchoscopy and surgical treatment. Dr. Cohen of New Orleans, I think several years ago, reported in the New Orleans Medical Journal about 85 cases of lung abscess with improvement in only about ten per cent of them. He thinks that all these cases are surgical. Dr. John B. Elliott of New Orleans does not approve of the surgical treatment. He says that if you will let these cases wait long enough and elevate the foot of the bed, they will bring themselves around and you do not have to do any surgery. They certainly need long continued medical supervision. You do not need to hurry any of these cases. They are not emergency cases. If I had a lung abscess I do not think that I would want any surgical interference for at least six weeks, but I would be in constant touch with a good roentgenologist. I would have him examine my lungs often, and mark out on the chart just the size of the cavity, whether it was improving or getting worse, getting any smaller or any larger. I would be guided very largely by what that roentgenologist said about my method of treatment.

The Bronchoscopic Treatment. There has been a whole lot said about the bronchoscopic treatment of these cases especially since Chevalier Jackson and Dr. Lynch came into the limelight but I am like Tom Bailey about the printing press. He says it might be all right, but he can't see it. Probably when I know more about it and understand it better, I can see their view more clearly. At Chevalier Jackson's clinic a few years ago, in three days I saw about fifty cases, some walking in, speaking to everybody, and seeming to be in perfect shape. He put them on the table and used the bronchoscope; then said "in two days." I think those cases would have done just as well without that. I could not see any benefit from just sucking this stuff out of the throat or the bronchus. When you consider the trauma connected with it, it is not justifiable in my opinion.

Surgical Treatment. The surgical treatment, I think, is the only treatment, and I want to demonstrate a few lantern slides to show my method of operating. I think these cases can be operated on with perfect safety if you wait long enough; do not operate too early. Wait until the infiltration all around the abscess has practically disappeared and then I think you can operate on them with absolute safety.

DISCUSSION.

Dr. M. Ewing (Amory): This is a very excellent paper and I would like to report 13 cases of lung abscess throughout a 12-year period. One case was treated medically, not from choice, but because the patient refused any other. This was a case following tonsillectomy. I speak of the treatment he received only to condemn it. He was in a terrible state; he coughed up casts that looked like ferns, and the case resulted in death. My treatment of the twelve cases turned out well, excepting one who still has not completely recovered. There is a bronchial fistula, but it is not draining pus now. Of these twelve cases, contrary to the Philadelphia cases of Chevalier Jackson, none followed tonsillectomy. They followed various causes. The treatment of these is divided into two types, those which ruptured into the bronchus and were checked constantly by roentgen-ray, although I did in one case after failure of pneumothorax have to collapse part of the chest wall in order to get closure. The remainder of these

were treated by operation. Contrary to what Dr. Hairston says, I aspirate these cases, having them localized the best I can by roentgen-ray. I follow the aspiratory needle to locate the point of the abscess. Even though bifocal, the roentgenogram does not always tell you the best place to reach the abscess. It is my custom to do the operation in two stages, and I prefer local anesthesia throughout. At the first operation, I resect two or three ribs, separate the pleura from the ribs which are allowed to remain. In other words, I get a free space. I pack that with gauze and leave it forty-eight hours after closing the wound nicely. At the end of that time I always have firm adhesions. At the second stage, I do not use any anesthesia, but simply remove the stitches and go into the abscess. I have had no infection of the pleura. I have not had complications. I know of other surgeons who are adopting the same process, and Dr. Hairston reported a number of cases, you remember, about ten years ago. Now we have learned that by using the same case as in abdominal surgery, you can operate on the chest. It is possible where adhesions prevent collapse of the lung with an abscess and when it is draining through the bronchus, for you to go in.

Dr. J. H. Hairston (closing): I haven't anything further to say. I thank Dr. Ewing.

TRAUMATIC RUPTURE OF THE NORMAL SPLEEN*

AIME PAUL HEINECK, M. D.,

CHICAGO, ILLINOIS.

Rupture of the spleen, spontaneous or traumatic, is imperfectly understood although many hundreds of cases have been reported in the literature, the subject demands much additional study. Spontaneous rupture of the spleen has occurred in typhoid fever, in amyloid degeneration, in malaria and in many other pathologic conditions associated with splenomegaly. Traumatic rupture of the spleen, owing to its enlarged volume, increased friability, and lesser mobility consequent to the presence of perisplenic adhesions, is predisposed to traumatic rupture. Traumatic rupture of the pathologically enlarged spleen may follow a slight accident as in the case reported by Dorolle⁽¹⁾ in which a soldier

*Report of Three Cases with a Cursory Review of the Literature.

with an enlarged malarial spleen died a few minutes after having been struck a light blow on the side. At autopsy, the spleen presented two tears, one, on its external, the other, on its internal surface. It weighed 995 grammes; the abdominal cavity contained over 3 litres of blood.

Usually, rupture of the normal spleen results from a severe abdominal contusion or crushing injury. The vast development of automobile traffic on our streets has increased the frequency of this lesion. Therefore, a paper on the subject is not untimely and may serve to emphasize the importance of splenic rupture and the possibility of its being overlooked in patients, victims of automobile accidents. This paper deals only with traumatic subcutaneous rupture of the normal spleen. Such a rupture is usually due to a direct crushing injury on the left hypochondrium or over the left thorax as one may sustain in a fall from a bed, a tree, etc., from a blow, a kick, man (11), or horse (17), or from the impact of a hard body, a fractured rib, etc. Rupture due to penetrating wounds from without, we will not consider at this time. The small volume, mobility and location of the normal spleen, all protect to it a certain extent from injury.

Berger ⁽²⁾ in 1907, collected from the literature 467 cases of splenic traumatism, 306 of which were subcutaneous injuries. Two years later, Borgsitter ⁽³⁾ increased the number to 203 surgically treated cases. Barnes in 1914 reported 31 further cases of rupture of the normal spleen and Willis ⁽⁵⁾ in 1919, found 53 more cases reported.

ETIOLOGY.

This injury occurs in both sexes; in children ⁽¹⁰⁾ and in adults. Age or sex, of course, have no significance in traumatic cases. The automobile has many advantages and has become almost a necessity to a large section of the population, but it is also a powerful agent of injury and death. Many cases of traumatic rupture of the normal spleen reported in the medical

literature of recent years, have been the result of automobile accidents. Alamar-tine ⁽⁶⁾, Koltes ⁽⁷⁾, Willis ⁽⁵⁾ 2 cases, Garlock ⁽⁹⁾, Frank ⁽¹⁰⁾ and Chalier ⁽¹²⁾ have reported cases of the kind. In McCracken's ⁽¹³⁾ 20 cases, one-third were due to train or motor-car accidents. To produce a splenic rupture, it is not necessary that the car should pass over the victim; in a collision, such an injury may also result to an occupant of the car. In Kolte's case, the patient had been thrown out of the car and was operated for a splenic subcapsular hemorrhage, 4 days later. In 2 of the 5 cases reported by Butler and Carlson ⁽⁸⁾, the patients had been struck by an automobile; in the other three cases, the wheels passed over them. In most of the reported cases, the patient has been struck by a machine. A fall on the left lower ribs on a sharp surface is liable to cause a splenic rupture.

Splenic rupture may result from an abdominal traumatism elsewhere than in the splenic region. Latouche's ⁽¹⁴⁾ patient was a child 10 years of age who, following a fall on the right side, presented a splenic rupture. Forced extension and exaggerated flexion of the body have caused splenic rupture; at times, the fragment of a broken rib is the causative agent.

In automobile accidents, usually, the rupture is produced by a direct blow on the flank over the spleen or else by the spleen being compressed between two hard opposing surfaces either directly or through the medium of the ribs.

Within the past year, I have removed two ruptured spleens. In reporting them, I wish to report also a case in which ten years ago, I removed a ruptured spleen. All these patients were victims of automobile accidents. Short histories of these cases follow:

CASE HISTORIES.

Case 1. R. R. male; 8 years old, referred by Dr. L. Roth. History: The boy having been struck by an automobile was conveyed immediately to his home and there seen successively by sev-

eral physicians who failed to make a definite diagnosis. Dr. Roth was consulted 48 hours after the accident. The child then complained of severe abdominal pain and tenderness, both especially marked in the left hypochondriac region; he was pale, nauseated and apparently suffering from deep traumatic shock. Over the left hypochondriac region, the abdomen was tense, contracted and rigid. Temp. 99°, extremities cold and clammy, pulse 100 and weak. A blood examination showed: erythrocytes 2,950,000; leukocytes 14,350, hemoglobin 45 per cent. The symptoms suggested an internal hemorrhage and an immediate laparotomy was decided upon. Operation; Ether anesthesia. Rupture of the spleen being suspected, a long left transverse, subcostal incision was made. On opening the peritoneum, a large quantity of fluid and clotted blood escaped; it was found to proceed from the lower pole of the ruptured spleen on the convex surface of which could be seen a large stellate fissure partly filled with large clots. After walling off the intestines, the spleen was exteriorized, its pedicle was clamped and ligated serially with double ligatures of chromic gut and the organ removed. Peritoneal toilet and closure of the abdomen; no drainage. An infusion of 500 c. c. of saline solution was given. The boy made an uneventful recovery.

Case 2. Miss J. H. aged 20 years, was knocked down by an automobile. While still unconscious, she was taken to the St. Paul Hospital, Chicago, where for about 48 hours she remained in a condition of intense traumatic shock; she had a very rapid and weak pulse, a facies of cadaveric pallor and marked dyspnoea. Temperature 95°, pulse 105, respiration 24. Under continuous application of the usual restorative measures, the patient began to improve. Examination. The patient's body showed several contused areas. The expectorate was slightly blood-tinged. Tenderness and muscular contracture, fairly marked over the whole abdomen, were particularly noticeable in the upper left hypochondrium; there was a moderate degree of tympanites. The left hypochondrium was dull on percussion. Fracture of the left tenth and eleventh ribs could be demonstrated. The patient complained of pain in the left shoulder. Blood examination showed erythrocytes 3,050,000; leukocytes 12,700. Fifty-eight hours after the accident, owing to the continued presence of all the signs and symptoms of an acute anemia indicative of an internal hemorrhage, it was determined to explore the abdominal cavity. Operation. A splenic rupture being suspected, the abdomen was opened by a left subcostal incision. The peritoneal cavity contained a larger amount of free and clotted blood which was quickly removed. Exploration traced the

hemorrhage to the spleen which was found ruptured in the superior pole. After ligation of the pedicle which chromic gut, the organ was removed; two gutta-percha drains extending to the former splenic bed were inserted. They were removed two days later. Abdominal closure. The left side of the chest was immobilized by overlapping strips of adhesive plaster extending over the left half of the thorax from the anterior median line of the body to the posterior median line. Following the operation, a subcutaneous infusion of 700 c. c. of saline solution was given. It was repeated daily for three successive days. The patient made a smooth recovery. One month after the accident, the only symptom present was some pain over the left chest on coughing, sneezing or yawning.

Case 3. H. A. Referred by Dr. Ross, 18 years old, sustained in an automobile collision, abdominal injuries. He was immediately conveyed to the Iroquois Hospital, Watseka, Illinois. When seen two days after the accident, he was suffering from intense abdominal pain and presented a board-like rigidity of the abdominal wall and other signs of abdominal injuries. Pain on pressure was especially marked in the left hypochondriac region; patient was very pale, pulse and respirations were accelerated; patient had vomited. Splenectomy, recovery. Ten years later, he is in excellent health and is able to work the same as his comrades.

SYMPTOMS OF SPLENIC RUPTURE

The most important symptoms of splenic rupture are, as may be expected, those that arise from severe abdominal visceral injuries, viz: traumatic shock, hemorrhage and abdominal phenomena. Vomiting is not a constant symptom. These immediate symptoms do not as a rule enable us to differentiate a splenic rupture from that of any other abdominal viscus. Generally, it is only after a delay of several hours, or even days in some cases, that the intensification of existing symptoms or the appearance of new ones focuses attention on the spleen.

In every case of abdominal contusion, splenic rupture is a possibility. Therefore, in examining patients with traumatic abdominal injuries, the possible clinical symptoms associated with splenic rupture should always be kept in mind. This is a very important fact in automobile accidents, as in these victims the contusions and in-

juries are often general and are not necessarily confined to the hypochondriac region. It is well to remember that such injuries may happen to persons within a car as well as to those injured by a car striking or passing over them; severe blows on the flanks or a costal injury in the neighborhood of the spleen are very likely factors in the production of a splenic rupture.

Let us consider the most salient symptoms caused by splenic rupture. Shock is usually, but not invariably, present. It is manifested by its usual signs and symptoms; pallor, cold sweat, drawn facies, rapid respiration, small and rapid pulse, etc. Patients may get up and walk for some time after the accident, but syncope appearing some hours or some days after an abdominal injury, associated with a small rapid pulse is suggestive of a delayed hemorrhage, and when supported by other corroboratory symptoms, is almost pathognomonic of splenic rupture. This delayed or recurring syncope is indicative of recurring hemorrhage and calls for immediate operative relief. Persistent pain and tenderness especially when stronger later than at the time of accident are also symptoms of great value. The pain in the case of a splenic rupture may not be strictly localized. It is always most marked in the superior abdominal quadrant, it may be iliac, inguinal or irradiate to the lumbar region. In character, the pain is acute, often stabbing, and is more intense on pressure and in the dorsal decubitus.

Pain in the left shoulder (5) when present is a very important though not an absolute symptom of splenic rupture. It has been reported in about 10 per cent of the cases, although it is probable that it was present in many others but not looked for. This sign has been observed in spontaneous as well as in traumatic rupture of the spleen. It was present in one of my cases. It may be a late sign, as in Havlicek's case⁽¹⁵⁾ of hip dislocation and associated splenic and pancreatic rupture, in which it was only observed on the

fifteenth day after the accident, at a time when there were no abdominal symptoms. The corresponding upper limb is also usually cold. Quenu⁽¹⁶⁾ attributes this scapulo-humeral pain to possible irritation of the inferior surface of the diaphragm by blood clots and also to irritation of the centripetal fibers of the splenic nerve, the medullary centers of which are adjacent to those of the sensory nerves of the shoulder. On the other hand, Havlicek thinks the pain is referable to the splanchnics rather than to the phrenic nerve. Muscular contraction or rigidity of the abdominal wall is usually a very early and progressive symptom; at first, it is localized; later, it becomes generalized (board-like abdomen). It may be delayed (Hubbard⁽¹⁷⁾ and Latouche⁽¹⁴⁾), or absent even in complete rupture. It was observed in about half of the reported cases and it is more likely to be found on the left than the right side. It was present in all my cases.

Tumefaction over the region of the spleen, either stationary or progressive in character, has been reported in a few cases, and is indicative of a strictly localized effusion of blood or hematoma. The pulse may not be accelerated. There have been cases in which patients with an abdomen full of blood have shown an approximately normal pulse; nevertheless, a very rapid thready pulse, when present with other signs, is highly suggestive of internal hemorrhage. Temperature usually falls immediately after the accident but may return to normal or higher within a few hours.

Dullness is usual over the lower abdomen. The most important sign connected with dullness is that known as Pitts and Ballance's sign, first described by them in 1896. It apparently has received but little attention, as it is recorded as having been sought only in a very few of the reported cases. Pitts and Ballance⁽¹⁸⁾ found that if there be present an effusion of blood in the abdomen from a ruptured spleen, when

the patient was turned on the right side the flank remained dull owing to the presence of fixed clotted blood, but on turning the patient on the left side the right flank becomes sonorous. This sign, right-flank sonority and persistent left-sided dullness on change of position is strongly presumptive; in fact, is practically pathognomonic of splenic rupture. Its absence, however, does not negative the presence of splenic rupture.

Hemorrhage: In injuries and ruptures of the abdominal viscera, symptoms of internal hemorrhage furnish an almost imperative indication for immediate operation. In the cases collected by Berger,⁽²⁾ hemorrhage was the immediate cause of death within the first hour in 52 per cent of the cases of splenic rupture; in 14 per cent between 1 and 16 hours, and between 1 and 24 hours, in 34 per cent.

In immediately fatal hemorrhage, Quenu⁽¹⁶⁾ states that the patient presents a great pallor, cold extremities and cold and clammy skin. The patient complains of vertigo, tinnitus aurium. The pulse is small and rapid, the temperature low and the respiration superficial. The abdomen is painful and on percussion presents areas of dullness.

The common type of hemorrhage following splenic rupture is, however, not so striking. The extent and nature of the rupture determines the amount of hemorrhage. The extravasated blood may become partly encysted or slowly escapes into the peritoneal cavity owing to clotting at the vascular orifice, vasoconstriction, muscle contraction, etc. The hemorrhage may become arrested by clotting as the blood pressure drops, to recur again as the patient's condition improves. The hemorrhage may be interstitial, forming simple ecchymoses or small subcapsular or intrasplenic hematomas. When the capsule itself is ruptured, the blood may either be encysted through the formation of perisplenic adhesions, or, in the absence of adhesions, effuse freely into the peritoneum.

Finally, there may be what is called delayed or secondary hemorrhage. In such cases, the patient makes a rapid apparent recovery and there are no immediate symptoms of internal hemorrhage. However, after a period varying from hours to days, the patient, especially after some exertion, some increase of intra-abdominal pressure, such as attends coughing, defecation, suddenly collapses with all the symptoms of severe internal hemorrhage. Rupture into the peritoneal cavity of a subcapsular hematoma⁽²⁰⁾ or the giving way of protecting perisplenic clots or adhesions may determine all the symptoms of acute anemia.

Pitts and Balance⁽¹⁸⁾ in 1896 reported 17 cases of delayed hemorrhage after splenic ruptures. In the more recent literature, Schlegel⁽¹⁹⁾ reports a case of splenic rupture in which 12 days intervened between the accident and the time of operation. In Cisler's⁽²⁰⁾ case, the interval was the same and the patient had left the hospital and had resumed his occupation. There were 1½ litres of blood in the abdomen following rupture into the peritoneal cavity of a splenic subcapsular hematoma. In Patel and Vergnory's⁽²¹⁾ case, the free interval was 13 days, and in Eisenklam's⁽²²⁾ case, due to a fall out of bed, the interval was 19 days, which is the longest I find recorded. In Eisenklam's case, the spleen presented a nine-centimeter gaping tear in its parenchyma. In this case, 19 days after the traumatism, the stretched splenic capsule burst and there resulted pain and shock, and an overflow of blood into the peritoneal cavity. Previous to the involvement of the peritoneum, the patient had experienced little or no discomfort.

Blood. In a few cases, diagnosis was based on the blood examination revealing a large fall in red blood corpuscles. Butler and Carlton⁽⁸⁾ in 1926 reported 9 cases; in all the patients, except one, the leukocyte count was about 16,000. In the case reported by Koster,⁽²³⁾ in which the patient

was struck by an automobile, the blood count showed erythrocytes 2,500,000, leukocytes 12,200, and hemoglobin 35 per cent; in all my cases, the red blood count was low.

Thoracic Injury. Chalier⁽¹²⁾ in a recent article has drawn attention to the costal injuries so frequently associated with rupture of the spleen. When the injury is of a crushing injury, some of the ribs are likely to be fractured. The spleen is deeply imbedded under the diaphragmatic cupola and is protected by the inferior border of the thoracic cage. In order that a rupture be produced, Chalier thinks it is necessary that there be a concomitant lesion of the thorax which may amount to a fracture of the ribs, and in the case reported by him (an automobile wreck case), and in some reported by other clinicians, there was such an injury. Three of the 9 cases reported by Butler and Carlson showed such an injury; there was a rib fracture in one of my cases. In general, the literature shows that the possibility of such an associated injury has been frequently overlooked; it probably was present but not noticed in many of the recorded cases. It is stated to have been observed in from 10 to 15 per cent of the published cases.

DIAGNOSIS

From the foregoing it can easily be inferred that an exact pre-operative diagnosis of splenic rupture is not always easy, is not always possible even though signs and symptoms may be very suggestive, very presumptive. Diagnosis ought to be based on the patient's previous state of health, the circumstances attending the injury and, particularly, on the mode and time of appearance, grouping and evolution of the symptoms. Although splenic rupture may follow any abdominal traumatism, it is more likely to occur if violence be applied either laterally on the external face of the base of the thorax or from the front backward on the anterior

abdominal wall in the left superior quadrant.

Failure or delay in diagnosis aggravates the prognosis. In Berger's collection of cases, a pre-operative diagnosis was made in only 15 per cent. In 19 previously unpublished cases, observed either by Quenu and his colleagues, a clear diagnosis was made in 8 and a probable diagnosis in 3. In the 151 operated cases of traumatic splenic rupture which Quenu collected from the literature, an exact pre-operative diagnosis was made in 43, and in 15 others a diagnosis of internal hemorrhage was made without precise location of the injured viscus. As a general rule, the exact diagnosis followed an exploratory laparotomy indicated by the symptoms of acute abdominal hemorrhage. In my own cases, the operative indication was internal abdominal hemorrhage, an injury to the spleen being strongly suspected.

Quenu thinks that a diagnosis of traumatic splenic rupture can be made in the latent period, when a patient who has recently received an injury involving the left hypochondrium, shows a certain sensitiveness in this region, as well as a certain degree of persisting abdominal wall contraction, especially if the temperature keeps about 38° C.

Differential Diagnosis. Rupture of the liver may stimulate splenic rupture, especially in a child having a well-developed left lobe of the liver. Splenic rupture may simulate rupture of the left kidney, but the latter condition is associated with hematuria. Ruptured gastric ulcer is accompanied by more intense peritonitic phenomena and by frequent hematemesis. In a case reported by Wallace,⁽²⁴⁾ the diagnosis was cholecystitis, but in this case the splenic rupture had occurred two years before, following a blow from a car and the ribs had been fractured but the patient had recovered spontaneously. Moreover, the case was complicated as being one of transposition of viscera. In women of the

child-bearing age, a ruptured ectopic fetal sac would have to be excluded.

EVOLUTION

When the rupture is not very extensive and only a small hematoma intra-splenic or peri-splenic results, the effused blood may in time become absorbed or encysted; it may initiate a fibrous tumor by organization of the clot; or it may undergo purulent transformation. In Wallace's case, above referred to, the ruptured spleen was found in a mass of adhesions; it was fibrous and atrophied.

When not very extensive, a rupture may heal spontaneously. (Descout.)⁽²⁵⁾ Huegler⁽²⁶⁾ at the autopsy of a patient who had died from a hepatic neoplasm 15 days after a splenic rupture, found the splenic tear closed by a resistant thrombus.

If a splenic rupture be left to its own evolution, the mortality varies from 38 to 90 per cent, according to different statistics. Of 168 cases collected by Berger in 1907, 145 died the first day, the fatal result being due to hemorrhage in 90 per cent. The prognosis is much better in children; Fevrier⁽²⁷⁾ reported 15 cases occurring in patients under 20 years of age; 12 of these recovered. Quenu found that the mortality of splenic rupture treated by splenectomy in patients under 20 years old was only 14 per cent as compared with 32 per cent in patients above that age. Schlegel found that 15 cases of splenic rupture treated by splenectomy within 1½ to 12 days after the occurrence of the accident gave 12 recoveries.⁽¹⁹⁾ The condition of delayed hemorrhage has already been alluded to.

COMPLICATIONS

Traumatic rupture of the spleen may be the only lesion present; it may be one of two or more, near or distal, associated lesions. Contusions, lacerations and ruptures of the left kidney, pancreas and liver are the most frequent complicating lesions. Chavannez and Guyot state that rupture of the left kidney has been found in 25 per cent of the reported cases of splenic rup-

ture. Havlicek⁽¹⁵⁾ and Zeano⁽²⁹⁾ each report a case of simultaneously ruptured spleen and pancreas. In these two patients, removal of the spleen was followed by recovery. Co-existing gastric, diaphragmatic or other injuries may aggravate the patient's condition.

PATHOLOGY

In traumatic splenic rupture, the lesion may vary from a simple contusion characterized by sub-capsular ecchymoses and integrity of the capsule to multiple tears, T, Y-shaped or stellate, fragmentation or even complete avulsion of the viscus from its vascular pedicle. There may be a crushing or a bursting of the organ. Pohl⁽³⁰⁾ in 1910 reported a successfully operated case in which a child 3½ years old was crushed beneath the wheels of a carriage; the splenic vein alone was torn, the artery being uninjured.

In some cases, there is only an intra-splenic effusion of blood or a hematoma of greater or lesser volume which, as already stated, may form the starting point of a serious or fatal secondary hemorrhage. In splenic rupture proper, the capsule is usually torn and there may be detachment of a portion of the substance of the spleen into the abdominal cavity.

Opinions vary as to whether the internal or external face of the spleen is most usually injured; the lower part of the spleen being least protected is more frequently the site of injury.

TREATMENT

From the high mortality which attends the expectant treatment of splenic rupture, it is evident that the only effective treatment is operative. When a fairly probable diagnosis has been established, delay is dangerous. A properly performed needless laparotomy is practically without dangers; a non-operative treated splenic rupture is almost invariably fatal. Delay only serves to diminish chances which operative aid may have to offer. The surgical measures may be divided into conservative and radi-

cal procedures. The exposure of the spleen may be done under either paravertebral or general anesthesia. A sandbag is placed under the left side chest, so as to secure a better view of the left dome of the diaphragm.

The conservative measures applicable are cauterization, ligature of the splenic pedicle, tamponade and splenorraphy. Ligature of the vascular pedicle en masse, is liable to cause necrosis of the organ. It is to be rejected. If the splenic artery alone is ligated, atrophy of the parenchyma results. It may perhaps be employed when there are extensive vascular adhesions. Conditions very rarely warrant its performance.

Tamponade, though it may be quite effective in arresting hemorrhage, has two important drawbacks. At best, it is a very uncertain measure and it eventually leaves a weak spot in the abdominal wall. Tamponade either alone or combined with simple suturing, may be resorted to in cases of limited rupture or when the condition of the patient does not warrant a long operation. Berger's statistics include 10 cases of splenic rupture treated by tamponing with 1 death and Quenu gives 15 cases with 2 deaths.

Splenorraphy was first done by Larmark in 1896 and has been employed by many surgeons since then. Owing to the inaccessibility and friability of the spleen, it is generally a difficult operation; its general mortality has been reported as 50 per cent, but Willits, in 1919, found it to be 25 per cent. If splenorraphy is done, the suture line should be covered with omentum as Gourrin⁽³¹⁾ suggests, both for hemostasis and perintonization. It is only rarely practicable.

In general, splenectomy is the operation of choice in any important splenic rupture particularly a transversal rupture or in extensive lacerations. It insures complete and permanent hemostasis. In the absence of perisplenic adhesions, it is of easy and

rapid execution. Partial splenectomy is indicated when the lower pole of the spleen is completely detached and the remaining part integral.

A median incision may be employed for an exploratory laparotomy but the splenectomy (subcostal) incision should be used when a fairly precise diagnosis is made. It must be said, however, that the diagnosis is usually a probable diagnosis. To the median incision may be added a transverse incision extending towards the loin (3). An adequate incision is most serviceable in cases of associated visceral lesions. One must be careful in ligating the vessels of the hilus not to injure the tail of the pancreas. It is preferable to close the abdominal wall without drainage, drainage weakening the abdominal wall and predisposing to subphrenic suppuration.

Splenectomy appears to have been first done by Roddick, in 1885, who removed the organ through a small opening in the lumbar region. In Berger's statistics, 135 splenectomies gave a mortality of 38.7 per cent. Borgsitter in 1909, who collected 203 cases of splenectomy (not all traumatic cases), found the operative mortality of splenectomy to be 35.3 per cent. Willis in 1919 found that the mortality of splenectomy for traumatic rupture cases was 28.8 per cent. Schlegel states that in fifteen cases in which an interval varying from 1½ to 12 days elapsed between the occurrence of the injury and the operative relief, splenectomy gave 12 recoveries.

In the Mayo clinic⁽³²⁾ the mortality in 417 cases of splenectomy for all conditions, done from 1904 to 1926, is stated to have been 10.3 per cent. Only 10 of these were traumatic cases. According to Quenu, the general mortality of splenectomy for adults above 20 years old is 32 per cent and for individuals under 20 years 14 per cent. The operation can be successfully combined with nephrectomy as in Hersey's⁽³³⁾ case.

Is splenectomy, in the human subject, attended with lasting undesirable after-effects?

fects? This can be more intelligently answered after a brief enumeration of the functions (33) of this organ. Removal of the organ means a temporary, a partial or complete abolition (35) of those functions partly or wholly dependent on the spleen. What are those functions?

a. During prenatal life, the spleen participates in the formation of the leukocytes and of red blood-cells. After birth, it takes part in the destruction of deteriorated or disintegrated red blood cells. It has been called the "graveyard" of the red blood corpuscles. The liberated hemoglobin of the destroyed blood corpuscles is conveyed by the splenic vein to the liver and there transformed into bilirubin. According to some investigators, the liberated hemoglobin may be manufactured into bilirubin in the spleen itself.

b. It forms white blood corpuscles, particularly lymphocytes. A large number of lymphocytes are produced by the Malpighian bodies. "All the white blood-cells have defensive functions, especially the large mononuclear endothelial leukocytes." Mayo.

c. It assimilates iron and is a storehouse for it, especially the iron liberated from the decomposition of red blood-cells. The liver, on the contrary, is the storehouse of the iron ingested; it may partake of the spleen function. The spleen is regarded by some as the principal organ of the reticulo-endothelial system, playing a dominant role in iron metabolism.

d. It acts as a scavenger, as a filter, separating worn-out cells, infectious and toxic agents from the blood-stream. These, under normal conditions, are either destroyed by the phagocytic activities of the spleen or conveyed into the liver for destruction or detoxication. As the lymphatic glands act upon the lymphatic stream, so the spleen acts upon the blood brought into it. The chief function of the spleen is that of filtration.

e. It has some share in nitrogenous metabolism and it plays an important part

in the digestion, consumption and utilization of food (Richet). During digestion, the spleen expands and contracts synchronously with the digestive periods. "That the spleen must be of some significance in digestion has been prompted by the gland's intimate anatomic connections with the portal system; its blood supply from the celiac axis, its proportionately excessive atrophy during starvation and inanition, and by reference by many experimental investigators, as well as by many clinicians, to a state of hunger and voracious appetite after splenectomy." (Kahn)⁽³⁸⁾.

f. It acts as a kind of vascular reservoir to the portal system and to the vessels of the stomach.

g. Under normal conditions, it produces blood-platelets.

h. It elaborates ferments, and also a hormone which has a stimulating action on bone marrow. By its pump-cells, it influences blood pigments and metabolism. The bone marrow is called the "cradle" of the red-blood corpuscles.

i. It is considered by some investigators as a member of the sympathetic endocrine system. It has no external secretion and it has not been demonstrated that it has an internal secretion.

Following the removal of the normal bone marrow. By its pulp-cells, it influences spleen as in traumatic rupture, the pathologic spleen, as in splenic neoplasms, etc., certain changes usually occur. In cases in which these changes fail to develop, the existence of one or more accessory spleens may be suspected. After splenectomy, there is noted.

a. A secondary anemia due in part to the operative hemorrhage incident to splenectomy, and in part to the loss of the spleen.

b. An increased resistance of the red blood-cells to various hemolytic agents (hypotonic salt solution, hemolytic serum, etc.)

c. A lessened tendency to hemoglobinuria, to jaundice and sometimes even an

ence of jaundice after the exhibition of hemolytic agents.

l. An increase in the total fat and cholesterol content of the blood which gradually decreases and returns to normal (Egger). This has been observed both in splenectomized dogs and in the human.

m. A transient decrease in the antiseptic and bactericidal properties of the blood serum which rapidly returns to the normal. The agglutinins and opsonins remain unaltered (Bucalossi). The bodily vigor and resistance are decreased.

n. Changes in the blood-picture which usually persist for several months (35, 38). The blood-picture usually returns gradually to normal. In some cases, the post-operative anaemia is permanent (5).

o. Appearance of polycythemia, 5,500,-7,000,000 per cu. m.

p. Numerical increase in lymphocytes and in eosinophiles and in blood-platelets.

q. Presence of nucleated red blood-cells.

r. Morphological changes in the red blood-cells.

s. A disturbance in the iron metabolism.

t. An increased output of iron in the feces which lasts for from four to six weeks.

u. An hypertrophy of remaining splenic fragments, of accessory spleen or spleens, up to the size of the normal spleen, a hyperplasia of the lymphatic glands of the greater curvature of the stomach and of the omentum, a hyperplasia of lymphoid tissue throughout the body, and an increase in the size of the liver. This hypertrophy compensates in time for the loss of the spleen.

v. A weakening of the digestive power for a period of several months. There is a temporary diminution in gastric secretion.

w. Owing to the release of the controlling influence of the splenic hormone,

the bone-marrow functions to excess. It also changes from its normal yellow fatty character to a red cellular hyperplastic type.

k. A decrease of fat in the feces.

The spleen is an important organ. Nevertheless, animal experiments and clinical observation amply show that splenectomy does not noticeably impair growth, reproductive power, general health, nor apparently shorten life expectancy. That this ductless gland, the largest in the body, is not as essential an organ as the liver, the liver, the thyroid gland, the pancreas or the adrenals, is evidenced by its rare absence at birth and by the survival of patients after its removal. After splenectomy, the functions of the organ are vicariously assumed by other elements of the reticulo-endothelial system. These elements are found in the sinuses of the lymph glands, in the capillaries of the liver lobules (stellate-cells) of Kupfer) and of the bone-marrow, in the connective tissue (wandering cells), in the adrenal cortex, in the hypothysis, etc. The cells of the reticulo-endothelial system devour deteriorated blood-platelets, effete red and white blood-corpuscles and metabolize all of these.

Accessory spleens occur; they vary in size, location and number (from one to twenty). In a patient operated (34) on for strangulated intestine, fifteen years after a previous splenectomy for splenic rupture, the following findings were noted: "The whole of the peritoneum covering the small intestine and mesentery was covered with small tumors, varying in size from that of a pin's head to about one inch by half an inch. The tumors were either sessile or pedunculated and appeared to have involved only the peritoneal covering of the gut. There were perhaps 200 to 300 tumors. The general appearance suggested splenic tissue; they appeared to be quite innocent in character. The microscopical examination by the Pathology Department, University of Sheffield, of one specimen removed for examination, showed that it was

a small mass of splenic tissue, containing pulp with sinuses and Malpighian bodies. The whole structure presented a dense fibrous tissue capsule, and an increased amount of fibrous tissue in the trabeculae. In this case, evidently, at the time of splenic rupture living splenic cells were set free and implanted in the peritoneal cavity. The amount of splenic tissue so formed appeared to be quite equal to that in a normal spleen."

According to Koster, there appears to be some general compensatory lymph gland enlargement following splenectomy; Jolly and Lieure⁽³⁰⁾ have reported that in animals there is a possibility of a real regeneration of the spleen; and O'Connor⁽⁴⁰⁾ mentions the possibility of accessory spleens functioning after splenectomy.

CONCLUSIONS.

1. Traumatic rupture of the normal spleen is becoming more common with the increase of automobile accidents. Three personal cases of this kind are reported.

2. The symptoms of splenic rupture are in general not pathognomonic except perhaps Pitts and Ballances sign of persistent left-sided dullness and with shifting right-sided dullness on percussion.

3. The patient's safety lies in early and precise diagnosis, followed by immediate laparotomy and appropriate operative relief.

4. The prognosis in cases of splenic rupture left to their own evolution is extremely bad. In the presence of splenic injury and severe internal hemorrhage, immediate or delayed, the most conservative form of treatment is early splenectomy. It secures complete and permanent hemostasis. It is a life-saving operation.

5. Removal of the ruptured normal spleen is usually an operation easy and rapid of execution. The removal of the pathological spleen embedded in or bound down by dense perisplenic adhesions may present great though not insuperable difficulties. Drainage is rarely indicated.

6. The operation of choice for traumatic splenic rupture is splenectomy, performed under paravertebral or general anesthesia.

7. It is the present belief that the spleen is not essential to life or well-being, and that splenectomy does not lessen the individual's resistance to infection or does not shorten the life of the individual.

8. Earlier operation, improved technique and judicious post-operative treatment have lowered and improved the results of splenectomy.

CONCLUSIONS

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THE DIAGNOSIS AND TREATMENT OF CELIAC DISEASE, WITH REPORT OF TWO CASES.*

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NEW ORLEANS.

Celiac disease is not a common condition, but occurs rather infrequently. However, the difficulties met with in handling cases of celiac disease and the fact that the diagnosis is frequently missed, constitute a reasonable excuse for bringing this subject to your attention.

The condition was first described by Gee⁽³⁾ in the reports of St. Bartholemew's Hospital for 1888. It is known also as chronic intestinal indigestion; Herter⁽⁵⁾ called it intestinal infantilism. After the disease was first described by Gee⁽³⁾ in 1888 there was little heard about it until it was revived by Herter⁽⁵⁾ twenty years later. Within the past ten or fifteen years the literature pertaining to celiac disease has become rather voluminous and there has been considerable research done in an effort to determine the etiology.

The etiology is unknown, although many theories have been advanced to explain its occurrence⁽²⁾. The age at which the celiac syndrome manifests itself is markedly constant, usually coming on at from one to three years, after the child has been given a mixed diet. It is generally claimed that it never occurs among the breast fed, although J. H. Hess has reported two such cases⁽⁶⁾. The fact that cases of celiac disease do not tolerate fats, carbohydrates, nor fresh cow's milk is well established. This has led to the belief that the condition is due to the liberation of certain noxious substances in the intestinal tract, as a result of the action of bacteria upon fats, carbohydrates, or fresh cow's milk. This theory has neither been proven nor refuted.

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Another theory offered to explain the occurrence of the disease is, that there is a congenital deficiency in the secretion of the digestive enzymes. The rapid loss in weight when the child is on a mixed diet containing fats, carbohydrates and fresh cow's milk and the rapid gain in weight when a strictly protein diet is substituted, more or less disprove the theory of deficient enzymatic secretion. This theory was definitely exploded by Taylor⁽¹³⁾ in 1922 and more recently by Bauer⁽¹⁾ in 1928. These authors found that the digestive enzymes present in cases of celiac disease were the same in kind and quantity as for healthy children. Sperry and Bloor⁽¹¹⁾ stated in 1924 that the fat which was taken as food was different from the fat found in the stools. They called attention to certain physical and chemical similarities between the blood lipoids and the fecal lipoids. They believe that these isometric properties of the blood and fecal lipoids make it reasonably certain that the fatty material of the feces has its origin in the blood. Bauer⁽¹⁾, in his work referred to above, concludes that: "The etiology of celiac disease must be sought in some agent or influence that disturbs that side of the metabolic balance which is concerned with the transfer of used fats and carbohydrates back again into the intestinal tract."

DIAGNOSIS.

The prodroma shows up rather constantly at from one to three years, after the child has been given a mixed diet. The history in most cases is that the child had been well and hardy up to one year of age, or until shortly after beginning the mixed diet. The mother first notes a cessation of the growth of the child, or maybe an actual loss in weight. This is concomitant with nausea, anorexia, vomiting, diarrhea and enlargement of the abdomen. The child usually presents a sallow, waxy, or paste-like appearance, and the legs are liable to be too small in proportion to the rest of the body. Some cases may show edema of the face, or of the extremities. The stools are

voluminous, of a semi-solid character, of grayish color, contain an excessive amount of fat and range in number from three to five a day. If fats, carbohydrates and fresh cow's milk are withdrawn from the diet and the child given a strictly protein diet in sufficient quantity, the above symptoms quickly subside and there will be a rapid and steady gain in the weight. Indiscretions in the matter of diet cause prompt reoccurrence of the symptoms. Generally these children are pampered and spoiled by the mothers' indulgences so that they are extremely hard to manage. They are mentally alert and become rather adept in having things their own way by whining and whimpering. The blood sugar is liable to be low and the feces contain excessive amount of fats. Roentgen-ray examination of the gastro-intestinal tract usually shows a dilated colon. The three cardinal signs upon which a diagnosis of celiac disease may be based are: (1) Loss of weight, or stationary weight, without other apparent illness; (2) a prominent, doughy abdomen relatively free from tympanites; and (3) voluminous, porridge-like stools, grayish in color, of semi-solid consistency and containing an excessive amount of fat.

TREATMENT.

First of all the mother should be informed that the treatment at best will require months and maybe years, of honest and faithful co-operation. It should be made clear that no half-way measures in the matter of diet and management of the child will suffice. Strict adherence to the diet and regimen are absolutely essential to the treatment.

Gee⁽³⁾ stated in 1888 that cow's milk was the least suited food; Herter⁽⁵⁾ in 1900 recommended a strictly protein diet. Rurah⁽⁸⁾ introduced soy-bean flour in 1911. Still⁽¹²⁾ advised the complete avoidance of fresh cow's milk in 1918; Howland⁽⁷⁾ outlined his three phased high protein diet in 1921, which has recently been modified by Sauer⁽¹⁰⁾, who makes the plea for standardization in the dietary treatment.

The diet which I shall describe is the so-called three phased high protein diet of Howland, as modified by Sauer. The original diet as recommended by Howland specified the regular Eiwiss milk, but Sauer in his modification suggests the use of dried protein milk, as found on the market at the present time. He also includes over-ripe bananas in the third phase of the diet, whereas Howland recommended cereals, etc.

Phase 1. Protein milk exclusively. One packed level tablespoonful of dried protein milk per pound of body weight in twenty-four hours. This may be prepared by mixing it with either water, or Ringer's solution. The mixture may be prepared in the form of a thick creamy mixture to be fed from a spoon, or in the form of a thin liquid mixture to be fed from a bottle or from a cup. It may be sweetened with liberal amounts of saccharin if desired. The twenty-four hour quantity should be divided into four feedings, with plenty of water given in between feedings. The duration of this phase of the diet depends upon the individual response of the child, but usually it is not necessary to continue it for longer than from five to six weeks. The child is given nothing but protein milk until the anorexia, vomiting, diarrhea and abdominal distention have cleared up and the child has begun to show gain in weight. It is best to begin this phase of the diet with several tablespoonfuls less than the number of pounds of body weight, gradually increasing the amount. The rate of increase in the amount of the food should be guided by the presence or absence of anorexia, vomiting, diarrhea, etc.

Phase 2. When the best previous weight has been regained and the symptoms of nausea, vomiting, diarrhea and abdominal distention have cleared up, milk curd, egg, scraped beef, beef juice and cottage cheese may be added to the protein milk diet. The weight of the child should continue to increase rapidly, without recurrence of the symptoms. During this phase of the diet,

cod liver oil, orange juice and iron should be added in gradually increasing amounts. The blood sugar is liable to become too low and the child should be watched to prevent hypoglycemia.

Phase 3. It is during this stage of the diet that carbohydrate is gradually added. Well-cooked meats and well-cooked cereals are gradually added. Hass⁽⁴⁾ claims that well ripe bananas afford the best form of carbohydrate. Some investigators have even added bananas in the first and second phases of the diet, with good results. As many as ten or fifteen bananas may be consumed within the course of a day.

CASE REPORTS.

Case I. Ethel T., a white female, aged 3 years, weight 21 pounds, was admitted to the pediatric division of the out-patient service, Touro Infirmary, New Orleans, November, 1926. At the time of admission she was suffering with acute bronchitis and a little later was treated also for pyelitis. Although the history in this case was classically that of celiac disease, a definite diagnosis was not made at the time of admission, due to certain atypical findings.

The child was of full term and normal delivery, being the first and only pregnancy of the mother. The family history was unimportant. She was breast-fed for the first two months of life, but at that time was given a modified cow's milk formula, due to failure in the breast-milk supply. During the first year of life she made normal progress in both growth and development—weighing 25 pounds at one year of age.

At thirteen months of age she was given the usual mixed diet, consisting of cow's milk, egg, meats, vegetables, cereals and fruits. She made no gain in weight on this diet, and at eighteen months of age, shortly following an attack of measles, she began to manifest certain digestive symptoms, such as food nausea, anorexia, vomiting and diarrhea, with only slight enlargement of the abdomen. The diarrhea would come on for several days at a time and then alternate with constipation, which would last for two or three weeks at a time. The stools during the diarrhea attack ranged in number from three to six a day, were voluminous, of a grayish color, of porridge-like consistency and very fetid. During the attacks of constipation the stools were smaller, firmer and of lighter color.

The physical examination was essentially negative, except for slight abdominal enlargement and

the marked undersize and underweight of the child for her age. She appeared to be mentally precocious and gave the impression of a badly spoiled child. She was very "fussy" and whined and whimpered over the least sort of thing.

The urine showed glucose present in amounts varying from faint to heavy traces and occasionally none at all. The blood sugar was low (53 mgm. per cent). Examination of the feces was negative for parasites and ova. The Wasserman test was negative. Roentgen-ray examination of the gastro-intestinal tract was negative.

The initial diet, after the diagnosis of celiac disease had been made, consisted of 1½ pints of skimmed milk daily, scraped beef, beef juice, egg, cottage cheese, spinach, peas, beans, tomatoes, orange juice and small amounts of dry toast. She made a rather rapid gain in weight at first, but her weight promptly fell back to its zero level at the first recurrence of diarrhea. She was kept on this diet for several months and the weight showed wide fluctuations, up and down.

On May 18, 1927, she was given protein milk exclusively. For the first two weeks the food was prepared by adding 14 level tablespoonfuls of protein milk to one quart of boiled water. Four feedings of 8 ounces each were given daily. During the third and fourth weeks the protein milk was increased to 16 level tablespoonfuls and on up to 18 tablespoonfuls for the fifth and sixth weeks. At the end of the sixth week the child had gained two pounds, the nausea, anorexia, vomiting and diarrhea had ceased and the stools were normal in number and character. The blood sugar rose during this time from 53 mgm. per cent to 83 mgm. per cent and the sugar in the urine had disappeared.

On June 27, 1927, the second phase of the diet was begun. To the protein milk diet, as described, beef juice, scraped beef, cottage cheese, egg and bananas were added. Cod liver oil and orange juice were also added. Two grains of saccharated ferrous carbonate were given three times a day. Up to October, 1927, a period of five months, the weight of the child had advanced from 22 pounds to 30 pounds and there had been no recurrence of the symptoms. She was lost sight of here and further progress notes are not available.

Case 2. Rose Mae, a white female, age 4 years, weight 27 pounds, was admitted to the children's division of the out-patient clinic, Touro Infirmary, New Orleans, August, 1927. The child was brought to the clinic because of failure to gain in weight, giving a history which typified celiac disease.

She was of full term and normal delivery, being the second child. The family history was unim-

portant. She nursed the breast up to one year of age and was then given the usual mixed diet, which consisted of milk, egg, meats, vegetables cereals and fruit. For the first two years she made normal progress in growth and development, but at about the end of her second year the mother noted a cessation in growth at first, which was followed later by an actual loss in weight. Coincident with the loss in weight the symptoms of anorexia, vomiting, diarrhea and abdominal enlargement were manifested. The diarrhea had been constantly present and stools have ranged in number from three to five a day. The stools were voluminous, semi-solid in character, of grayish color and very fetid. Up to the present time the child had had none of the diseases of childhood. Within the previous two years the mother had sought the advice of a number of physicians and she described her plight by saying: "I am about ready to quit." On going into the dietary history it was found that the mother had made the observation that cow's milk intensified the symptoms.

The child looked to be about two and one-half years of age, but her actual age was four years and she weighed only 27 pounds. She was pale and had a sallow, waxy appearance. The abdomen was markedly enlarged and the legs appeared disproportionately small for the rest of the body. The stature was dwarfed, but the posture was fairly good. The glands in the anterior triangles of the neck were slightly enlarged. The tonsils were hypertrophied.

Blood examination showed a secondary anemia. The feces was negative for parasites and ova. The Wassermann test was negative. Roentgenograms of the gastro-intestinal tract were negative.

This patient did not remain in the clinic for treatment, but sought the services of a private physician, Dr. E. A. Socola, who concurred in the diagnosis of celiac disease and who has been kind enough to supply me with data from his private records to show the results of his treatment.

On September 2, 1927, Dr. Socola began the dietary treatment, which consisted of a high protein diet, with liberal amounts of well ripe bananas. The diet employed did not exactly conform to the plan outlined by Howland, but the results were, nevertheless, very gratifying, as will be seen. At the time treatment was begun the weight of the child was 27 pounds. Three weeks later she began a rapid and steady gain in weight. Within six weeks her weight had reached 29 pounds and by the end of the twelfth week 32 pounds. The anorexia, vomiting and diarrhea had cleared up by the fourth or fifth week and the stools had

resumed their normal character. The child at the present time is making favorable progress and has had no recurrence of symptoms.

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DISCUSSION.

Dr. E. F. Naef (Baton Rouge): I want to confine my remarks to the diagnosis and treatment as stated in the subject of the paper. The diagnosis of celiac disease should be a simple thing. The condition that it would most likely be confused with, on first observation in a fully developed case in the run-about child is, of course, tuberculous peritonitis, as you would view the case after the inability to walk had developed, with the prominent abdomen, and the marked anemia almost to a cachexia.

Of course, the absence of temperature is an outstanding point, not commented upon in this paper. We have our signs for the determining of the presence of accompanying tuberculosis in celiac disease; we do not have any associated ascites in celiac disease, the distension being due to the marked atony of the intestinal musculature, particularly of the colon. Of course, we do have the stools showing the rather typical character, large, voluminous, oatmeal stools, gray in color or green, depending upon the diet.

Another point which should be emphasized is the matter of almost complete absence of secretion of hydrochloric acid. Gastric analysis, in these cases should show diminished hydrochloric secretion to a complete anacidity. Many cases as regards this anacidity will progress under treatment with gain in weight, and continued im-

provement with no marked effect on the secretion of hydrochloric acid.

Another point, as regards the stools, we find increased calcium output in these cases, and it points another avenue in the matter of therapeutic aid. These cases should receive calcium, and I make it a point to give these patients a form of calcium in addition to a three phase protein diet as mentioned by Dr. Williams. The furnishing of acids in the form of fruit acids is very helpful in the early stage, and the protein milk, together with the use of lactic acid milk sometimes reinforced with some readily digestible monosaccharid, Karo corn syrup preferably, is helpful in the first stage.

I might say, in closing, that these cases unfortunately, do not respond as rapidly to treatment as we might have gathered from listening to the paper. I think if we can get a gain in these cases of one-half pound a month, we are doing very well. The condition is essentially chronic and extends over a period of weeks, months and years. And, in the matter of chronicity, I want to remind you again of the fact brought out by Dr. Holt some years ago, of the development of a sudden ability in these cases to metabolize their food properly, sometimes as late as puberty; they continue to struggle along, under sized, extremely mal-nourished, and after passing a certain age, out of a clear sky they begin to gain in weight, and metabolize their food more properly.

About a further treatment, I recently have used liver extract, but in the two cases in which I have used it, there was an increase of the diarrhea and the use of it was discontinued.

Dr. J. A. Crawford (Lake Charles, La.): The essayist in this paper, and Dr. Naef in his discussion of the paper, have covered the subject so well that there is little left for me to say.

I was not present when the doctor began to read, due to the fact that I thought that we were to meet on the second floor as we did this morning, but I did get to hear the most of the paper read.

There are two or three points not mentioned in this paper that I think are important in the diagnosis of celiac disease: first, celiac disease is a very rare disease; I doubt very much if the average general practitioner will see a case of celiac disease once every five years, and certainly he will not recognize it; second, the extreme offensiveness of the celiac stool; of course, all stools are offensive, but one who has examined the celiac stool will never forget the extreme mal odor; it is very offensive.

There is some evidence to lead us to believe that celiac disease is somewhat infectious, well

babies who have associated with celiac cases have developed celiac disease; these instances are rare, however, and further investigations will have to be made before we can confirm this report. Koch's postulates have never been fulfilled in experimental work in monkeys, and no cases have been produced experimentally.

No case of celiac disease has developed in a breast-fed baby while breast fed; practically all cases develop during the second years.

The three-phase diet as emphasized by the essayist is very proper and will cure all cases if carried out at the right time.

Dr. J. D. Bloom (New Orleans): I appreciated the paper of Dr. Williams, but I feel that I may be counted amongst those of you who have in the past overlooked some of these so-called celiac cases. On the other hand, I am not convinced that the diagnosis is an easy one. Only recently I had two cases, one in which the diagnosis finally proved to be aerophagia, and the second case,

where a diagnosis of celiac disease was ultimately appendicitis—chronic appendicitis.

When we consider the symptoms of celiac disease as a chronic intestinal indigestion, it is quite confusing. We realize that this entity is a chronic condition, also that it is an indigestion, but heretofore, we have considered, generally speaking, chronic intestinal indigestion due to carbohydrates, and have forgotten the possibility of chronic appendicitis.

Dr. Williams (closing): I do not believe I have anything further to add, I am sorry I did not get through with my case reports.

Chairman Debuys: You may utilize this time for your case reports.

(Dr. Williams read case reports.)

"As stated, the physical condition was negative, except for the marked undersize and underweight of the child." I wish to thank you gentlemen who entered into the discussion of the paper.

REVIEWS

SURGICAL DISEASES OF BILIARY SYSTEM*

EARL GARSIDE, M. D.,**

NEW ORLEANS.

PART II.

THE BILE DUCTS.

Surgical diseases of the bile ducts are most frequently obstructive in type. Except for injuries and congenital anomalies, lesions of the ducts are rarely primary, but usually occur as sequelae of pre-existing pathological conditions in the liver, gall-bladder, or duodenum. Jaundice is the most constant symptom. Effects of the retention of pancreatic secretion may be noted if the distal portion of the common duct or ampulla of Vater is involved (Balo and Ballou⁴⁵).

Variations from the normal arrangement of the bile ducts have been mentioned under "Anatomy." Congenital obliteration

of the bile ducts is an anomaly which causes a very serious condition. The child may be jaundiced at birth or become icteric within the first few days. It is unusual for jaundice first to appear after several weeks. The liver is enlarged as may be the spleen also. Bleeding from the stump of the umbilical cord is a frequent symptom. The urine is, of course, bile-stained, and the stools are clay-colored. In making a differential diagnosis the principal conditions to be considered are congenital syphilis, icterus neonatorum, and Buhl's disease. The history and the Wassermann reaction will serve to distinguish the former condition, and the presence of clay-colored stools will rule out the latter diseases.

Congenital dilatation of the bile ducts causes recurrent attacks of jaundice, pain in the right hypochondrium, and a palpable cystic mass developing during childhood or youth. The condition is usually found unexpectedly during exploration of the abdomen.

The biliary passages are subject to both open and subcutaneous injuries. Direct injuries are produced by penetrating

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wounds, but certain blows produce injury without piercing the abdominal wall. The chief dangers from such wounds are hemorrhage and bile-peritonitis. Courvoisier collected 34 cases of sub-cutaneous injuries; the gall-bladder was most often involved, and injury of the common duct was second in frequency. Long⁽⁴⁶⁾ recently reviewed injuries of this type and reported a case of traumatic rupture of the bile ducts.

Cholangitis, or inflammation of the bile ducts, occurs in three forms: (1) acute catarrhal; (2) chronic catarrhal; and (3) suppurative and ulcerative.

Acute catarrhal cholangitis has little surgical importance except for its recognition as the case of mild painless jaundice. Relief of the catarrhal condition of the duodenum—to which it is secondary—by appropriate diet and mild catharsis, quickly resolves the disease and dispels the jaundice.

Chronic catarrhal cholangitis is usually attended by some obstructive lesion, as a stricture or stone, which will generally overshadow the co-existing cholangitis. If the condition is not relieved by conservative management, surgical intervention may be advisable, especially if there is an obstruction which can be removed at operation.

Suppurative and ulcerative cholangitis is caused when biliary stasis is accompanied by infection. There is a diffuse purulent involvement of the larger and smaller ducts. The cause of the obstruction is usually a stone which often is impacted and which completely blocks the duct. Other causes may be carcinoma, parasites, and cysts. Counsellor and McIndoe⁴⁷ have shown by the celloidin injection and corrosion method that there is always a marked dilatation of the bile ducts. The biliary passages are filled with bile stained pus. Multiple abscesses in the liver frequently result. The liver enlarges notably, and becomes tender. The gall-bladder is in a state of acute suppurative inflammation.

The symptoms and signs are those of acute infection superimposed on the usual manifestations of biliary obstruction. There is anorexia, malaise, and occasional paroxysms of pain. Jaundice is constantly present. There are severe chills, fever, nausea, vomiting, and depression. The pulse is rapid, and leukocytosis is marked.

Treatment, of necessity, is surgical. This disease is so frequently accompanied by profound sepsis and toxemia that the surgeon must usually employ all of his skill and judgment if his efforts are to be attended by success. If the condition be recognized early, sepsis and jaundice will not formidably dominate the clinical picture. These occur when the disease has progressed to a later stage, and add especial emphasis to the importance of pre-operative treatment. The principles of treatment outlined under jaundice should be observed and special measures taken to support the patient and overcome hepatic insufficiency. Surgical intervention must be restricted to the accomplishment of the one prime requisite, namely, adequate drainage of the biliary system. This is best accomplished by cholecystostomy performed under local or regional anesthesia.

Stones in the common duct are usually secondary to stones in the gall-bladder. The phenomenon of bile pigment and cholestrin absorption by the dilated sacculi of the hepatic duct after cholecystectomy demonstrates the ability of the mucosa of this duct to assume some of the functions observed in the gall-bladder, and may, therefore, account for some of the stones in the hepatic duct and the common duct.

A gall-stone may start to pass down the cystic or common duct at any time. In its passage it is gripped by the muscular wall of the duct, and the spasmodic contraction gives rise to an attack of colic. The commonest site for the stone to be thus gripped in the neck of the gall-bladder or Hartmann's pouch. The calculus, therefore, will not enter the cystic

duct, but will either give rise to acute cholecystitis, hydrops, and empyema or float back out of the neck of the gall-bladder and give no symptoms, at least for a time. However, smaller stones will pass through the duct, and gradually dilate it, as has been shown by Counseller and McIndoe,⁽⁴⁷⁾ until this large stone may progress into common duct along with many other smaller ones. When this occurs, there will be obstruction to the flow of bile, either partial or complete. Jaundice, of course, will follow, the degree of which will depend on the completeness of the blockage of the duct. After the primary spasm relaxes, bile may pass the stone, and later, as the ducts dilate, a still freer passage of bile is allowed. With this increased difficulty in delivering bile to the duodenum, there is a proportionate increase of pressure in the duct system. The liver becomes enlarged and tender, but the gall-bladder, as a rule, is not dilated; on the other hand, it attempts to meet the demands of higher pressure in the ducts by increasing its contractile power by muscular hypertrophy. The infection attendant upon stone formation and biliary obstruction leads to scar formation of the gall-bladder, so that, in addition to the marked hypertrophy of the walls, there is fibrosis and distortion. If, however, the obstruction be complete, as in carcinoma of the head of the pancreas, there will be no thickening of the gall-bladder wall, but rather a thinning of the wall, allowing increased distention. Observation of these facts gave Courvoisier the basis for the law that bears his name.

Symptoms of common duct stones are typically those of the severe colic which attends its passage down the duct and the jaundice which is always present in some degree. (Discussed also under "Jaundice.")

Treatment consists of cholecystectomy and removal of the stones from the duct, the steps in the accomplishment of which, however, are dependent on factors re-

ferred to previously. Care should be exercised to make certain that all stones are removed, as a high percentage of secondary operations are necessary to remove stones overlooked at the primary operation.

Strictures of the common duct may be classified in three groups: (1) Those due to obliterative cholangitis; (2) those associated with biliary fistula; and (3) those in which operative trauma has caused complete obstruction and persistent jaundice.

In cases that have undoubtedly had patent common ducts for months after primary operation the cause of stricture must be attributed to obliterative cholangitis. In many cases a review of the patient's history will convince one that cholangitis existed before operation and that surgery was undertaken on the basis of mistaken diagnosis. At secondary operation a most difficult situation is encountered. There is often a widespread destruction of the ducts, and the surgeon will be fortunate to find a small portion of the hepatic duct which he can anastomose to the stomach or duodenum.

Stricture of the ducts may be accompanied by biliary fistula. Biliary fistulae arise spontaneously and as a result of injury. Those arising spontaneously are due to inflammatory or malignant ulceration, which establishes an abnormal passage between the biliary tract and some other organ or externally through the abdominal wall. Such fistulae generally indicate that there is obstruction of the common duct. External fistula is the most commonly recognized form and it generally leads from the gall-bladder rather than from the ducts. Long continued postoperative drainage is a common cause in that, in addition to making stricture of the ducts more probable, it produces a tract which may become a permanent fistula. Internal fistulae are most frequently established with the duodenum and more rarely there occurs cholecysto-colic fistulae or broncho-

biliary fistulae. The cases of stricture of the ducts with biliary fistula are more favorable for operation, as there is no jaundice and no biliary cirrhosis. The internal biliary fistulae may not require surgical treatment, and when such treatment is indicated operation generally is not as technically difficult as in the cases of external fistula with stricture of the ducts. In external fistula Murphy recommended the use of the fistulous tract as a duct to anastomose to the duodenum. This should not be done, as contraction is liable to occur. It is better to anastomose the remnant of the injured duct directly to the duodenum.

In the third group—that of stricture with immediate and complete obstruction—we experience the most difficulty both in preparing the patient for surgery and in the technic of the operation. The pre-operative preparation of the jaundiced patient has been discussed previously. The technic of the operation has been amplified and modified by many surgeons. Perhaps the best method is to anastomose the stump of the duct to the duodenum. McArthur,⁽²⁹⁾ Walton,⁽⁴⁸⁾ Moynihan,⁽³⁰⁾ and Mayo⁽⁴⁹⁾ have recommended this technic with various personal modifications.

Carcinoma of the bile ducts is less common than of the gall-bladder. Its most common site of occurrence is at the junction of the cystic, hepatic, and common ducts. This location of the growth favors early mechanical obstruction. Hence, such a neoplasm is of definite surgical interest. In structure carcinomata of the bile ducts present the same types as in the gall-bladder.

Carcinomata of the ampulla of Vater are small, columnar-cell adenocarcinomata, and are important chiefly because of the vantage point at which they are located.

THE GALL-BLADDER

Diseases of the gall-bladder are especially amenable to surgery. Regardless of the fact that the gall-bladder undoubtedly has

important physiological functions, it can be removed and no apparent abnormal reaction will result. However, the gall-bladder, in common with other organs that are readily dispensable, has little reserve, and is, therefore, quickly affected by abnormal systemic changes. The surgeon must treat the diseased gall-bladder more frequently than any other organ of the biliary system. Indeed cholecystic disease is one of the most common indications for an abdominal operation. Judd⁽⁵⁰⁾ believes that not only is gall-bladder disease recognized more often than it was formerly, but that it now occurs more frequently. Mentzer⁽⁵¹⁾ reports that 5 per cent of 50,000 new cases admitted to the Mayo Clinic complained of gall-bladder trouble, and that 9 per cent more had gross or microscopic evidence of cholecystic pathology.

Cholecystitis is due to infection of the gall-bladder. Although acknowledging infection to be the exciting cause, mechanical, chemical, metabolic, and nervous factors are predisposing conditions which should not be disregarded. Biliary stasis in the gall-bladder may be produced mechanically by pressure of adjacent organs, the dependent position of the fundus, or an abnormal course of the bile ducts. Mann⁽⁵²⁾ have emphasized the importance of chemical factors and has experimentally produced cholecystitis in dogs by the intravenous injection of Dakin's solution. Our understanding of cholesterol metabolism is inadequate. However, it seems certain that cholecystitis and especially "cholesterosis" of the gall-bladder bears a most important relationship to cholesterol metabolism. Experimental work by Mann and Giordano⁽⁵³⁾ shows that sympathetic stimulation may cause a spasm of the common duct sphincter analogous to pylorospasm which will give rise to biliary stasis.

Cholelithiasis may or may not be associated with inflammation of the gall-bladder. If calculi be present they are incidental, the cholecystitis being the essen-

tial condition. The passage of gall-stones through the bile ducts gives characteristic symptoms but otherwise cholelithiasis presents the same clinical picture as cholecystitis.

Primary infection of the gall-bladder is rare and is considered to occur after an aseptically formed cholesterol stone obstructs the cystic duct or initiates inflammatory changes by friction against the gall-bladder walls.

Secondary infection is far more frequent. The paths by which infection may reach the gall-bladder are many.

(1) Infection through the blood stream:

- a. Through arterial blood in general septicemia.
- b. Through venous blood only by process of thrombophlebitis.

Koch⁽⁵⁴⁾ and Chiarolanza⁽⁵⁵⁾ demonstrated clumps of bacilli forming capillary emboli in the gall-bladder wall in cases of typhoid cholecystitis. Rosenow⁽⁵⁶⁾ has especially emphasized the hematogenous origin of gall-bladder infection. Organisms, chiefly streptococci, isolated from the center of gall-stones, the gall-bladder, and the cystic lymph glands of patients treated by cholecystectomy exhibited an elective affinity when injected intravenously into animals, and produced lesions of the gall-bladder and bile ducts. Wilkie⁽⁵⁷⁾ produced intramural changes in the gall-bladder wall identical with those seen in cholecystitis, by intravenous injections of streptococci from the cystic lymph gland after the method of Rosenow. Mann⁽⁵²⁾ produced cholecystitis in experimental animals by the intravenous injection of Dakin's solution and showed that the blood stream serves as a route to the gall-bladder for toxic substances and chemical irritants.

(2) Infection by the lymphatic route depends upon the following series of events:

Hepatitis—Infection of intra-hepatic lymphatics—extension of infection to the freely-anastomosing surface lymphatics of the liver—involvement of communicating lymph vessels in the outer wall of the gall-bladder.

If this be the sequence, the occurrence of hepatitis should be frequent. Graham⁽⁵⁸⁾ was the first to suggest the invariable existence of hepatitis in cases of gall-bladder disease. Small pieces of liver which he removed at operation for cholecystitis showed microscopic evidence of hepatitis in every case. Cholecystitis is frequently associated with inflammatory lesions of the appendix and other organs drained by the portal system. If the cholecystitis is caused by hematogenous infection, the organisms from the appendix must reach the gall-bladder through the hepatic artery after having traveled through the entire systemic circulation. Therefore, the infection might involve other organs as readily as the gall-bladder. Bile, infected with organisms from the portal blood, can cause cholecystitis only by contact infection. Such probably occurs very infrequently. Infection reaching the liver with the portal blood can, however, readily reach the gall-bladder by way of the intimate lymphatic connections through the attachment of the gall-bladder to the liver. Sudler⁽⁵⁹⁾ called attention to this definite lymphatic connection. Graham and his co-workers⁽³⁵⁾ have confirmed his idea and have concluded from their researches that infection most frequently reaches the wall of the gall-bladder by this "hepatolymphatic" route. The observation is now generally accepted; and has been especially expounded by Heyd,⁽³⁴⁾ Martin,⁽⁶⁰⁾ Moynihan,⁽⁶¹⁾ and others. The reverse of this process has been mentioned by many writers, and constitutes a "vicious cycle" which may cause hepatitis to follow cholecystitis. Further evidence of invasion by the lymphatic route is the presence of bacteria in the serosa more frequently than

in the mucosa and bile. Wilkie⁽⁵⁷⁾ found the bile sterile in the majority of cases of chronic cholecystitis, whereas the other coats of the gall-bladder showed streptococci in 86 per cent of cases. C. H. Mayo has also called attention to the significance of involvement of the cystic lymph nodes as an index of cholecystic disease.

(3) Infection through the bile stream may reach the gall-bladder either by the descent of organisms from the liver or their ascent from the duodenum. That retrograde infection from the intestine does occur seems rather definite since foreign bodies are found in the gall-bladder which in the absence of a duodenal fistula could reach the lumen of the gall-bladder in no other way. The duodenum may be especially rich in bacteria in cases of hypochlorhydria and achlorhydria as has been shown by Moynihan.⁽⁶¹⁾ That pathogenic micro-organisms and spores of molds are excreted in the bile has been demonstrated by the experimental work of Nichols.⁽⁶²⁾ The sequence of events in this route are: infection of the liver cell—hepatitis—destruction of parenchyma—infection of bile—contact infection of the gall-bladder mucosa. Graham and Peterman⁽⁶³⁾ were unable to produce cholecystitis by injecting large amounts of colon bacilli into the gall-bladder unless obstruction of the cystic duct or ligation of the blood supply was produced concomitantly. The mere presence of bacteria within the lumen of the gall-bladder should probably be regarded as of no more significance in producing cholecystitis than the presence of bacteria in the urine in the production of an inflammation of the urinary bladder.

(4) Infection by direct extension may reach the gall-bladder from any viscus to which it adheres, as the inflamed area of the stomach or duodenum in peptic ulcer.

PATHOGENESIS OF GALL-STONES.

The conclusion has been reached that three factors are of importance in causation of gall-bladder calculi: (1) Infection; (2) stasis of bile; (3) high chole-

sterin content of the blood. Of these three factors infection is probably by far the most important. Moynihan says, "Every gall-stone is a tombstone erected to the memory of the organisms dead within it; but sometimes the organisms are buried alive." This brilliant epigram is entirely true as regards multiple stones. The most frequent agent of infection occurring with cholelithiasis is the *Bacillus coli*; streptococci are frequently found, occasionally the *Bacillus typhosus*. These organisms have been found in nuclei of stones as late as 35 years after infection. However, more important than the occasional finding of bacteria entrapped in stones is their rather consistent isolation from the wall of the gall-bladder in cases of gall-stone disease. The *Bacillus coli* has been found in approximately 46 per cent of cases. Normally bile is sterile. However, bacteria readily gain entrance to the biliary tract by way of the liver, blood vessels, and lymphatics, and perhaps from the duodenum by way of the common duct. If the common duct is obstructed the bile becomes infected in a short time. It would appear, therefore, that stasis is an important factor especially in the presence of infection. As regards the importance of the third factor, the role of cholesterol, Moynihan⁽⁶⁴⁾ is of the opinion that mild inflammation in its early stage stimulates the activities of the gall-bladder and, due to the lymphatic engorgement, the mucosa becomes more absorptive. After the inflammatory process progresses the lymphatics become blocked, and since the mucosal absorptive activity continues, deposits of cholesterol occur on the mucosa. This condition is known as "cholesterosis" and may extensively involve the gall-bladder mucosa. A villus filled with cholesterol easily separates and becomes a nucleus for the rapid deposit of the cholesterol crystals, which soon envelop it to form a cholesterol gall-stone. Many such stones may be formed simultaneously.

Occasionally, however, we find, not many stones, but only one. A solitary stone is composed of pure cholesterol; it is not

caused by infection, though it may give rise to infection by becoming impacted once or oftener in the cystic duct. The cholesterol stone is referred to as the solitary "mulberry" stone in contradistinction to multiple, "faceted", gall-stones. The cholesterol stone is irregular and warty on the surface, like beeswax in appearance, almost translucent, and on section shows a characteristic appearance of spokes radiating from the center. It is the result of hypercholesterolemia, a condition often present during pregnancy. Furthermore, it has been shown that during menstruation the cholesterol content of the blood is high, and that during pregnancy there is a gradual increase, until it is approximately double normal in the ninth month. These observations help to explain the frequency of gall-stones in women and especially in women who have been pregnant.

Pathology. The condition of the gall-bladder expectedly will vary with the nature of the inflammation. Such involvement may be acute, and if so, is usually suppurative in character; or the inflammation may be chronic, and if chronic, it may or may not be preceded by an acute attack. Cholecystitis is frequently associated with gall-stones, but may occur without them. The longer the condition has lasted the more likely is it to be complicated by calculi.

Acute cholecystitis, according to Graham,⁽⁷⁴⁾ is found in only 7.6 percent of all gall-bladder diseases. It may not pass beyond the catarrhal stage, or it may develop into acute suppuration. In the former there is little to be seen by the naked eye except congestion of the organ. In the latter the gall-bladder is frankly inflamed. It is particularly likely to be distended with pus, if the outlet is obstructed. The contents of the inflamed gall-bladder consist of clear or bile-stained mucus or muco-purulent bilious material, which may sometimes contain much cholesterol in suspension or may be accompanied by gall-stones. The mucosa is of a bright

red color. The peritoneal surface may be covered with an inflammatory exudate, and there may be adhesions to surrounding structures. The liver is often enlarged and its edge rounded. The cystic lymphatic gland ("sentinel gland" of Lund) is enlarged, as may be the glands along the common duct also. Microscopically the thickened and congested wall is seen to be infiltrated with polymorphonuclear leukocytes. Areas of hemorrhage are frequent, and much of the surface epithelium may be desquamated.

The inflamed and distended gall-bladder may rupture into the abdominal cavity or into a loop of bowel to which it may have become adherent.

Chronic cholecystitis may be the result of acute inflammation, or it may come on gradually and insiduously. One of the early changes is a loss of the normal bluish lustre. The surface becomes dimmed, whitish and opaque, and the wall feels appreciably thickened. The liver overlying the gall-bladder is gray, firm, and contracted. Usually a subcapsular fibrosis is evidenced by radiating striations of white scar tissue. Moynihan⁽⁶¹⁾ calls attention to deposits of fat beneath the gall-bladder serosa. There are often pericholecystic adhesions to the omentum, duodenum, or colon.

Upon opening the gall-bladder the mucosa may be found to be edematous and swollen, deep red or purple in color. The villi may be thick and congested, or they may have disappeared entirely, leaving a surface covered by flat epithelium or by hyaline fibrous tissue. A characteristic feature of chronic cholecystitis is muscular hypertrophy, which is especially notable when stones are present. The muscle bundles enlarge, and may make up almost the entire thickness of the walls. The bundles may be separated by edema and round cell infiltration, leaving deep crypts and giving a "honey-comb" appearance. The thickening of the wall may be extreme in degree, and the cavity is often much con-

tracted. When the scar tissue involves the cystic duct the resulting obstruction gives rise to great dilatation of the gall-bladder. Owing to the obstruction of the cystic duct by the scar (or by a stone embedded in the mucosa) no bile can enter. Mucous secretion continues from the gall-bladder mucosa and fills the cavity with clear, colorless, watery fluid. The condition is known as hydrops of the gall-bladder. If a pyogenic infection is superimposed, the cavity becomes filled with pus, and empyema of the gall-bladder exists. This same sequence of events may, of course, occur in acute cholecystitis if the factors, infection and obstruction, occur concomitantly and in proper ratio. If infection be marked and obstruction slight, the bladder will be contracted and thick-walled, but if the obstruction is marked and infection slight, the bladder will be dilated and thin-walled.

The "strawberry gall-bladder" was first described in 1909 by Moynihan,⁽⁶⁴⁾ and the very appropriate name was given to the condition later (1910) by MacCarty.⁽⁶⁵⁾ It is now generally referred to as "cholesterosis." The reddened mucosa is studded with tiny sulphur-yellow specks. The fragile folds of mucosa are completely altered in appearance, being loaded down with dense yellow opaque masses, which may be confined to the summit of the ridges or may be traced down into the depth of the recesses. In severe involvement it may be widespread, but occurs only in patches in the milder cases. This yellow substance can be lifted off in long strings by means of a needle. Chemically it is a lipiod material, an ester of cholesterol. The significance of this lipiod substance is not known, but probably it has some relation to the metabolism of fat and cholesterol. At any rate, it never occurs in the normal gall-bladder, and is frequently associated with calculi.

SIGNS AND SYMPTOMS.

The most classical record of symptoms is given by Moynihan⁽⁶⁶⁾ as his "inaugural symptoms." These are as follows: "Flat-

ulence and fulness after meals, amounting sometimes to so great distress that a woman takes off her corsets or loosens them; great epigastric discomfort which may involve the right side also or pierce through to the back; early satiety during a meal, a feeling that when a small meal is taken the stomach is overfull; a sudden unaccountable sensation of intolerable nausea, described very often as 'seasickness,' sometimes accompanied by faintness and often shuddering, often coming on with great regularity; acidity and 'water-brash.' None of these symptoms is severe and none striking. It is in association and persistence rather than in individual character that their importance lies. Now and again in such patients a more acute disturbance of health is noticed; pain and distress in the upper part of the abdomen are associated with local tenderness and with swelling of the liver." Local tenderness over the gall-bladder is a constant feature. When the inflammation has spread to the parts around the gall-bladder there is usually rigidity of the right upper quadrant of the abdomen.

The pain of cholecystitis varies according to whether or not there is a stone attempting to pass along the cystic duct. When there is no stone the pain is generally localized to the region of the gall-bladder. If there is contiguous peritonitis sufficient to cause irritation of the diaphragm, pain may be referred to the right shoulder, by way of the phrenic nerve, and be felt in the region of the distribution of the fourth cervical nerve. The pain may be diffused over the right hypochondriac region, or, if the liver and gall-bladder are much enlarged downward, the pain may extend down almost the iliac fossa.

When there is a stone in the neck of the gall-bladder or in the cystic duct, the pain radiates also to the area beneath the inferior angle of the right scapula. This corresponds with the level of distribution of the eighth dorsal segment from which the gall-bladder derives its main sensory nerve sup-

ply. In uncomplicated cases pain is not felt in the right acromial or clavicular regions. True qualitative food distress is complained of by one-half of the patients (Judd and Mentzer).⁽⁶⁷⁾ Intolerance is generally noted for food fried in fat and other foods rich in neutral fats of a high melting point. Held and Gross⁽⁶⁸⁾ call attention to Macleod's observation that these patients best tolerate such fats as cream, butter, and yolks of eggs. Jaundice is not necessarily a part of the picture but may be present in about one-sixth of the cases. A history of jaundice occurring after attacks of acute abdominal pain would suggest the previous passing of a gall-stone.

Cholecystitis is most commonly mistaken for appendicitis or an inflamed duodenal ulcer. The former should be distinguished by consideration of the history, the site of pain, and point of localized tenderness. It must not be forgotten, however, that frequently appendicitis and cholecystitis occur simultaneously. In duodenal ulcer a careful history is of primary importance and may be the chief factor in making a differential diagnosis.

The uncertainty which may be attached to the clinical history is relieved or removed by the Graham-Cole method of cholecystography. The value of this method does not attach itself so much to the diagnosis of gall-stones in which condition the proportion of error is always small, but to the study of the gall-bladder's normal physiology, whereby one may observe the cycle of filling, concentration, and emptying, and arrive at conclusions as to the degree of pathological changes in the gall-bladder. The negative evidence may prove of as much value as the positive.

Of equal importance as the clinical diagnosis of cholecystitis is the establishment of a pathological diagnosis of cholecystitis at operation. With the present tendency to operate upon cases of cholecystitis at a much earlier stage than formerly, the recognition of the early pathological changes has become of increasing impor-

tance. Upon opening the abdomen in cases of chronic cholecystitis the surgeon may be surprised by the appearance of the gall-bladder. As has been mentioned, early changes are noted by a loss of the usual lustre and blush color, slight thickening of the walls, a few adhesions, and some enlargement of the lymph nodes along the cystic and common ducts. Judd⁽⁷⁰⁾ and Moynihan⁽⁶¹⁾ feel that their experience has shown that, although the gall-bladder may approach normality in appearance, if a definite reliable clinical history has made a verdict against the gall-bladder, it should be removed.

Treatment: That the diseased gall-bladder should be subjected to surgery seems to be generally accepted, and, too, the major issues of the operation have been standardized. Concerning the treatment of acute cholecystitis, the former controversy as to the type of operation and as to the time it should be undertaken has now been rather generally settled, at least, in American clinics. Unless there is evidence of a rapidly progressing and severe gall-bladder infection, it is imperative to observe the patient for a few hours or even several days before resorting to surgery. In the acutely inflamed gall-bladder, infection becomes localized more completely and more frequently than it does in an acutely inflamed appendix. In fact, in this respect the gall-bladder resembles the Fallopian tubes. If the process gives evidence of localizing, one should use conservative measures for a time. These are absolute rest in bed, only hot water by mouth, no catharsis, heat to upper right abdomen, gastric lavage, and possibly enemata. The patient should be supported, and dehydration should be prevented by administration of glucose and saline solution by proctoclysis, hypodermoclysis, or intravenous infusion. If the process shows a tendency to localize within twelve hours, it will usually remain localized and the attack will subside. If the process shows no tendency to localize within a few hours, it is much wiser to operate with the intention of merely

draining the gall-bladder. Attempts to expose or clamp the cystic duct will only add trauma to the already present infection, and post-operative stenosis of the ducts may be expected.

The discussion as to the relative merits of cholecystostomy and cholecystectomy has now lost much of its relevance and value. It is now rare for surgeons to drain the gall-bladder. Judd and Mentzer⁽⁶⁹⁾ report one cholecystostomy in one thousand gall-bladder operations. W. J. Mayo⁽⁷¹⁾ reports that for the entire Mayo Clinic the percentage of cholecystostomies is a little less than 10 per cent. Moynihan⁽³⁰⁾ reserves drainage of the gall-bladder for (1) cases in which local difficulties are present, in patients who are unable to stand a long operation and, by virtue of poor general health, it is prudent to curtail the operation; (2) cases in which so severe an infection is present that the patient is gravely ill and the least interference, compatible with the saving of his life, must be undertaken; (3) as one step of operation in extremely jaundiced patients with stones in the common duct.

As in all operations, the skill of the surgeon must be taken into consideration. Of course only an experienced surgeon should assume the responsibility of gall-bladder operations. However, operators of less experience, whose technic is not developed to such a finesse may attempt to perform abdominal operations in general and gall-bladder operations in particular. Cholecystostomy will give a lower mortality than cholecystectomy, especially in the hands of the less experienced. With special reference, therefore, to jaundiced or toxic and debilitated patients it must be emphasized that surgical intervention must be reduced to a minimum. The mortality of cholecystectomy in the presence of common duct stones and jaundice is tremendous. When biliary drainage has been established sufficiently long for the jaundice to disappear, the patient will be a much better operative

risk for the next stage—the removal of the obstruction in the common duct.

Cholecystectomy is best done through a high incision in the right upper quadrant, the particular incision which gives the most adequate exposure being the one of choice. There seems to be no question that it is better and safer to remove the gall-bladder by beginning at the cystic duct. There may be an occasional exceptional case better removed by beginning at the fundus. The cystic duct must be carefully ligated and of course there should be no spilling of bile. The surgeon will do well to respect the very irritant action of bile upon the peritoneum. Bile-peritonitis is a dangerous, yet preventable, post-operative complication. It was formerly customary to place an abdominal drain in all cases of cholecystectomy. Richter⁽⁷²⁾ and Buchbinder,⁽⁷³⁾ as well as numerous others advocated the closure of the abdomen without drainage. Buchbinder⁽⁷³⁾ has called attention to the harm from unnecessary drainage. In experimental animals he found that drains predisposed to extensive adhesions, and feels that the peritoneal reaction about a drain is responsible for the post-operative pain and nausea of which these patients complain. The incidence of post-operative hernia is reduced to a minimum by closure of the abdomen without drainage. Judd⁽³⁰⁾ is convinced that in the clean case in which the cystic duct is accurately tied and the oozing absolutely controlled the omission of the drain is a safer and better procedure. Although some do not favor this method, it has an increasing number of advocates.

NEOPLASMS OF THE GALL-BLADDER.

Tumors of the gall-bladder are very rarely benign, whereas malignant tumors, especially carcinomata are peculiarly liable to involve the gall-bladder.

Carcinoma of the gall-bladder forms five to six percent of all carcinomata (Graham, *et al.*).⁽⁷⁴⁾ A remarkable etiological relationship to cholelithiasis is one of the most

interesting features of this disease. Gall-stones were present in 69 percent of Musser's⁽⁷⁵⁾ hundred cases, in 95 percent of Couvoisier's⁽⁷⁶⁾ 103 cases, and in 90 percent of Mayo Clinic's⁽⁸⁰⁾ 10,126 cases. Rolleston⁽⁷⁷⁾ considers that from 4 per cent to 18 per cent of all cases of cholelithiasis will develop carcinoma. This condition usually occurs after forty years of age and affects women four to five times oftener than men. Mechanical irritation of calculi, the relation and the digestive or irritative action of bile seem to combine in producing the disease. Leitch⁽⁷⁸⁾ has been able to produce carcinomata in the gall-bladder of guinea pigs by implanting gall-stones and pebbles in the lumen of the organ.

Adenocarcinoma is the most frequent form. Of thirty specimens of gall-bladder carcinomata examined by Webber⁽⁷⁹⁾ twenty-seven were adenocarcinomata; and of forty-eight specimens examined by Burden⁽⁸⁰⁾ forty-four were adenocarcinomata. In rare cases an epithelioma may be present, having as its origin a metaplasia of the columnar epithelium to squamous epithelium.

Symptoms may be due to the pre-existing gall-stones, to the local tumor, or, in late stages, to the extensions and metastases. The liver is invaded early, and jaundice, resulting from involvement of the common duct, is one of the most constant features. The prognosis is very grave, and few cases live more than six months after the appearance of jaundice.

Sarcoma of the gall-bladder is known to occur but there are very few authentic cases recorded. Bayer⁽⁸¹⁾ reports two cases, Klingel⁽⁸²⁾ one case, and Carson and Smith⁽⁸³⁾ one case; the few other cases reported are not definitely proven.

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CARDIAC ASTHMA.

Acute paroxysmal dyspnea, often referred to as nocturnal dyspnea coming on, as it does, most frequently at night, but occasionally occurring after exertion, is a type of respiratory difficulty which is indicative of serious heart disease. Cardiac asthma is also a term applied to this particular cardio-respiratory dysfunction as well as acute suffocative pulmonary edema. The condition is characterized by a panting respiration, inability to lie prone, bubbling rales at times associated with cough, and frothy sputum. One of the outstanding features of cardiac asthma is the prompt relief attained by a full-sized dose of morphine given hypodermically.

Various hypotheses have been advanced to explain the genesis of this particular and peculiar type of dyspnea. It has been ascribed to a possible aortic reflex, to increased circulatory rate, to left ventricle failure, to left ventricle failure with a shift in the body fluids from transudates or edema. Other theories have also been suggested. The general concensus of opinion seems to be that it is due to functional insufficiency of the left ventricle, or in the words of the older clinicians, left heart failure. Palmer and White* have recently studied a group of 250 patients with cardiac asthma. They point out that the occurrence of paroxysmal dyspnea is of extremely grave prognostic significance. They suggest the left ventricle failure causes, with increased blood flow, a stasis of blood in the pulmonary circulation, so that the left ventricle is unable to take care of the blood sent on by the right ventricle. Blood accumulates in the pulmonary circuit. By reflex stimulation the asthmatic breathing is induced. The patient awakened by the difficult breathing, assumes an upright position and thus relieves the strain of the left ventricle. The morphine induces a reduction in the irritability of the respiratory center as well as ameliorating the nervous factor of the process, and thus in part aids the circulation by relieving nervous strain.

THE PRESENT STATUS OF CHIROPRACTIC IN LOUISIANA.

Walter Fife entered the Shreveport jail the first of February to serve a sentence of 60 days, as well as paying a fine of \$100.00. His brother, Joe Fife, is yet to be tried on the same charge that sent Walter Fife to jail, the illegal practicing of medicine. June and Hanning, who were conducting the so-called health institution at Shreveport for the Fife Brothers, were also fined \$50.00 and sent to jail for 10

*Palmer, Robt. S. and White, Paul D.: The clinical significance of cardiac asthma. J. A. M. A., 90:431-434, 1929.

days. These two men also were convicted of the illegal practicing of medicine.

The Louisiana State Board of Medical Examiners deserve praise for their consistent efforts to keep out of the State illegal practitioners of medicine, and particularly are to be congratulated upon the conviction of these chiropractors who have long attempted to flaunt the authority of the State, through the Legislature which has the ultimate authority as to who should or should not engage in the care of the sick. It hardly needs to be emphasized that the profession of medicine is one requiring long intensive training, and that diagnosis is the basis on which all treatment depends. Without such training, the learning of how to make a diagnosis, no treatment can be effectual. For a man to attempt to gather in a few weeks that which it has taken the practitioner of medicine years to learn is an utter absurdity. It seems ridiculous that the citizenry of a State has to be protected from the quack and charlatan by law, as any thinking man should appreciate the fact that it is impossible properly to treat diseases without knowing anything about the basic sciences of anatomy, chemistry, physiology, bacteriology and pathology, which knowledge is necessary to appreciate the evolution and the manifestations of bodily disorders. The chiropractor, as do other cultists, attempts to treat diseases without even a speaking acquaintance with the fundamentals of disease. The result has been, and ever will be, misery, distress, tribulation and calamity for the poor sufferer with early carcinoma or minimal tuberculosis or any one of a host of curable diseases, who they try to cure by a farcical and impossible spine adjustment.

THE RISE AND FALL OF AN EPIDEMIC.

The recent epidemic of influenza started on the western coast and moved eastward. In the figures compiled by the Department of Commerce it is possible to trace the

epidemic across the continent. Los Angeles, during the week of December 15, had 85 patients die with influenza, while New Orleans had 12, and New York had 16. Two weeks later the death rate in Los Angeles from influenza was 32; New Orleans had gone up to 52; New York to 46. One week later the peak of the epidemic had been reached in New Orleans. In the week of January the fifth, 84 people died from influenza, whereas in Los Angeles there were only 25 deaths, and in New York there were 55. By January the twenty-sixth Los Angeles reported no deaths from influenza, New Orleans 15, and New York 167. The same relative figures as applied to influenza hold good for pneumonia. The week that the influenza deaths obtained its greatest height in New Orleans, there were 62 deaths from pneumonia, whereas January 26 only 17 deaths had been reported.

Apparently it took about 4 weeks for the epidemic to obtain its height in New Orleans, moving on from Los Angeles. From New Orleans to New York required about 3 weeks of travel before the epidemic obtained its greatest height. The spread of influenza in the years 1928 and 1929 was not by any means as rapid as it was in the year of the great pandemic when the disease seemed to spring up almost simultaneously in different sections of the country.

WORTHY PENSION APPLICATIONS.

There is pending before the 70th Congress two pension bills which deserve the support of the medical profession. These two bills have been introduced in the House by one of its members and in the Senate by Senator Ransdell of Louisiana.

The first pension bill presented in the interest of Mrs. Goldberger, is particularly important, as Dr. Goldberger during his life, was one of the outstanding Public Health officials and scientists of this country. It was he who gave unequivocal proof that pellagra is a deficiency disease.

During the course of the investigation, both he and his widow subjected themselves to experiments to prove this thesis. By his demonstration of the genesis of pellagra Goldberger has done much for the South, making possible the control of a disease of immense economic and social importance to this section of the country. During the years of his active investigative life Goldberger contracted typhoid fever, dengue fever, and yellow fever, while studying these diseases.

The second of the pension bills has to do with the granting of a small monthly sum to Mrs. Mary von Ezdorf. Dr. von Ezdorf was a member of the United States Public Health Service and for many years was in charge of the Marine Hospital at Mobile and later at New Orleans. Later when he was director of malaria investigation in Mississippi and Louisiana he had his headquarters in New Orleans.

Pensions have been granted in the past by Congress to the widows of medical men who have died in the service of their country, for example in the case of Carroll of yellow fever fame, Assistant Surgeon W. W. Miller of the United States Public Health Service, and Past Assistant Surgeon T. B. McClintic, all of whom died during the active years of life while employed by the Government.

Members of the Louisiana State Medical Society and Mississippi State Medical Association are urged to write to their Representatives and Senators stating their approval of these pensions. Members of the Mississippi State Medical Association are in a particularly favorable position to influence action on these bills, as Senator Pat Harrison is a member of the Senate Finance Committee, before which committee these bills will be presented.

LEPROSY IN UNITED STATES. — Hopkins and Denney have made a statistical study of 718 lepers hospitalized over a period of thirty-four years in the Louisiana Leper Home—later the National Leprosarium. Two hundred and fifteen were foreign born and 503 were natives of the United States. The present population of the hospital is 287. Mexico, China, Italy, Greece and the Philippine Islands have furnished one-half of the total foreign born. Most of the lepers came from Louisiana, California, New York, Texas and Florida; 418 came from Louisiana. The incidence of leprosy among the white population of Louisiana is computed as twice that in the negro population. Of the total cases, 11.0 per cent were of the nerve type, 39.1 per cent of the skin type, and 49.9 per cent of the mixed type.

THE PROMOTION OF THE COMMON WELFARE; THE AIM OF MODERN MEDICINE.—The scientific structure of medicine was never on surer ground nor more able nor better prepared

to combat and to cure disease than it is today; but its economics were never in such a dubious state. Society may be thought of as being made up of three great estates: the poor, the middle class, and the wealthy. The population of each is never fixed, but constantly changing, losing and recruiting as time goes on. The second estate in which reside the moral spiritual, political and social strength of society will always constitute the great mass of humanity and present not only the greatest number but the greatest complexity of problems. The health problems of this class are just as truly economic as are the problems now so acutely confronting and affecting the industry of agriculture, and as governmental agencies are now severely aroused to the necessity of finding relief for the latter, so must the leaders and economists of the medical profession, in co-ordination with kindred authoritative welfare agencies, undertake to find a solution of the health problems of the former.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL MEDICAL STAFF MEETING JANUARY 15, 1929.

Immediately following the call to order by Dr. Musser the meeting was addressed by Dr. George Bel, who asked the Staff's co-operation with regard to the limitation of hospital abuse, urging everyone to report any such cases coming to their attention.

Dr. Musser then briefly and rapidly spoke of several interesting points in autopsy records. One case was that of acute lymphatic leukemia in a child 11 months old, a Mongolian idiot. Another, a case of acute poliomyelitis with paralysis without an increase in the spinal fluid cell count. There were signs of consolidation in the chest, and the autopsy showed a collapse of the lung. The third case was one of tuberculous peritonitis with rupture of a tuberculous ulcer of the intestine.

Dr. Musser's service presented a case of gonorrheal vaginitis in a child of 12 years of age with an unusual complication. The child was seized with acute abdominal pains while in the ward and a diagnosis of acute appendicitis was made. On opening the abdomen it was found that she had bilateral pelvic inflammatory disease. According to Dr. Musser this is certainly a rare complication of gonorrheal vaginitis in young girls.

The second case, a 12-year-old girl, had had cerebro-spinal meningitis, with headache, chills, fever and stiffness of the neck. Eight spinal drainages were performed. Some work was done on this case to determine the results of the ingestion of sugar on the sugar content of the blood and spinal fluid. These results were presented briefly.

Another case of cerebro-spinal meningitis in a child was presented. The cell count in this case had been over 30,000, and she had received antimeningococcic serum.

The fourth case as a young man who had been taking the proprietary preparation, Bromidia, for 5 years in sufficient doses to take 6 grams (90 grains) of chloral a day. This was done to control nervousness and an alcoholic tremor.

Dr. Herrmann presented a young white male who had been admitted for an abdominal complaint to the surgical service. Following a careful examination it was found that he had a dextrocardia, and on further examination that his appendix was on the left side, the seat of his complaint. A left appendectomy was therefore performed. Following his operation he had been very carefully studied. It was found he had a

complete situs inversus. In addition there was a systolic thrill and murmur at the second right interspace, with a visible pulsation here. Dr. Hermann's opinion was that there was a patent ductus arteriosus and a defective interventricular septum.

The second case was also one of dextrocardia, but in contradistinction to the preceding case was not of the congenital type, but of the secondary type, therefore, a pseudo-dextrocardia. The electrocardiogram therefore did not show a reversal of the waves as in the first case, but rather a fixation of the electrical axis in all three positions. The condition was secondary to pulmonary tuberculosis.

Dr. Wintrobe showed a case of hemophilia in a man 53 years of age. There had been a history of cough, fever, and pain with swelling in the left side. There was a bluish yellow discoloration in the left side of the abdomen and a palpable tumor mass. The physical examination was otherwise negative. The patient stated he knew he was a bleeder. He has four brothers, three of whom are bleeders. Both of his sisters are not bleeders. Two uncles are also bleeders.

His blood picture showed a slight anemia; 426,000 platelets; a bleeding time of 2 minutes and a coagulation time of 14 to 15 minutes. Testing the coagulation time with blood drawn from the vein, it was 50 minutes.

WILLARD R. WIRTH, M. D.

CHARITY HOSPITAL SURGICAL STAFF.

The January meeting of the section brought out several interesting subjects. The statistical analysis of the deaths occurring in the hospital during the month of November showed the following mortality: general surgery, 5.5 per cent; gynecology, 1.6 per cent; obstetrics, 3.9 per cent; genito-urinary diseases, 5.5 per cent, and eye, ear, nose and throat 0.4 per cent. During the same month there were 853 operations performed. It is interesting to note that during this time, also, there were 2,370 accidents treated in the hospitals accident room.

Four cases showing various points of interest were presented and discussed very liberally. The first was that of a white male who had been admitted to the hospital in a moribund condition, and presenting a severe infection of the right side of his face. He died a short time after his admission. It was pointed out, by Dr. Ochsner, that infections about the face, between the hair lines, are very dangerous; that the patients should be hospitalized and treated with ultraconservatism.

The second case was that of a colored female who died following pan-hysterectomy. The cause of death was general peritonitis. Organisms in the patient's uterus and cervix are thought to have been the focus for the peritoneal infection, and it was pointed out that the organism was probably the streptococcus. A case of acute suppurative and gangrenous appendicitis with peritonitis was then discussed. The usual interesting data were reviewed. This patient died three days after admission. The last death discussed was that of a white male, aged 47, in whom there were found an enlarged median lobe of the prostate, and a diverticulum of the bladder. The blood chemistry on the date of death showed a very great increase in the nitrogenous products.

Following this Dr. Smith, of the Pathological Department, presented two interesting specimens. One was a glandular type of adamantinoma of the upper jaw, left side; and the other was a cystic adamantinoma involving the lower jaw.

FRANK L. LORIA, M. D.

MERCY HOSPITAL STAFF TRANSACTIONS.

At the January monthly meeting of the hospital staff the annual election of officers resulted in a unanimous re-election of all incumbents to serve for one more year.

The discussion of Institutional deaths was of exceptional interest, due to the remarkable number of extraordinary cases with unusual complications.

The clinical services are being investigated by a committee, headed by Dr. W. Otis, with the object of revision and improvement. This investigation is under the control of the general staff.

Dr. Ficklin presented two patients coming under his treatment.

Case one: A woman having a clinical picture of abscess of the liver, including hyperpyrexia, leukocytosis and acute onset of pain. She had had a questionable tumefaction removed along with an amputation of the breast a good number of years previously. At operation it was found that she was suffering from a multiple carcinomatosis of the liver.

Case two: A man suffering from an abscess of the kidney apparently hematogenous in character and having as its place of origin a secondary infection of the foot following trauma.

The order of business at the February meeting was revised to allow of the presentation of the much discussed films of the petrolagar people. Mr. F. L. Dickinson, their special representative, promised, at the request of Dr. E. Fenner, that at no time in the future would this body, or hospital's

name, be used in connection with this exhibit, for advertisement purposes.

A case of eclampsia was discussed at the request of the committee on deaths.

Dr. H. D. Ogden read a paper on "Pyelitis of Pregnancy," taking into account the mechanical factors entering into the infection, the prophylaxis, treatment and complications. A general discussion followed, which proved of interest because of the many therapeutic agents which are being used with little or no appreciable effect.

DR. MAURICE CAMPAGNA, Secy.

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL STAFF MEETING,

FEBRUARY 11, 1929.

Abstract—Lymphoblastoma (Hodgkin's Disease) in child—Deep Roentgen-ray therapy.—Dr. A. Street.

Patient—White, male, aged 9 years, admitted to hospital January 5, 1929.

Complaint—Stiff neck, dyspnea, dysphagia, headache, fever, anorexia, nausea, vomiting, loss of weight, and swelling behind and below angle of left lower jaw. Onset seven months ago, following a slight injury to neck, when motion of the head became limited. Shortly afterward an enlargement of the left upper cervical region was noted and at the same time a rhinologist noted a mass in the pharynx and recommended roentgen-ray therapy, which was given. This was followed by temporary improvement, but symptoms gradually returned, and when seen the patient could scarcely breathe or swallow on account of the mass in the pharynx and was rapidly becoming emaciated. Temperature 99° to 101° F., beginning a few weeks ago. Two diseased teeth were recently removed.

The previous history and family history were irrelevant.

Physical Examination—Patient was very thin, pale, breathing was labored, and there was a marked respiratory wheeze apparently from pharyngeal obstruction. The head was inclined to the right and head movements were limited.

There was enlargement of the region below and behind the angle of the left jaw. Discrete, slightly tender nodules were felt in this region, the largest being no more than ½ inch in diameter. There were no other palpable enlargement of lymphatic glands. The left half of the pharynx was occupied by a solid mass bulging from the lateral and posterior pharyngeal walls, and covered with mucosa. Physical examination was not

otherwise remarkable and a roentgenogram of the chest showed no enlarged mediastinal glands. The hemoglobin was 62 per cent; erythrocytes, 4,488,000; color index, 0.62; leukocytes, 39,500; differential leucocyte count, small lymphocytes, 8 per cent; large lymphocytes, 4 per cent; neutrophils, immature forms 29 per cent; neutrophils, mature forms 54 per cent; eosinophils, 5 per cent; no malaria found. Index of resistance +17.

One of the cervical nodules was easily removed for diagnosis, and Dr. Lippincott reported a lymphoblastoma of the malignant or Hodgins type.

Treatment—Deep roentgen-ray therapy was given by exposure through the right cervical region, initial exposure of thirty minutes, 0.5 mm. copper and 1 mm. aluminum filtration, 4 milliamperes, 200 K. V.

Subsequent—The patient returned two weeks after the treatment. The masses in the pharynx and in the left cervical region had almost disappeared. Breathing and swallowing were normal. The patient was eating well and gaining in weight and strength. The biopsy wound was cleanly healed. Blood examination showed hemoglobin, 72 per cent; leukocytes, 35,500; differential leucocyte count: small lymphocytes, 2 per cent; neutrophils (immature forms), 96 per cent; neutrophils mature forms 2 per cent. No malaria found. Twelve hundred milligram hours of radium treatment were applied into left cervical region.

Report from patient on February 10, 1929, was that improvement continued. Following the case report, the pathology, clinical course and treatment of the condition were discussed.

Abstract—Post Influenzal Disturbances of the Heart.—Dr. L. J. Clark.

The actual incidence of cardiac mischief resulting from influenza has been determined by Hyman to be from four to six per cent during the pandemic of 1918-19 and 1925-26.

The reaction of the heart to the influenza toxin is probably more marked than to the toxins of other acute infectious diseases. The development of more refined methods, including the electrocardiograph, is responsible for the correct interpretation of these conditions.

Three groups of affections have been determined by Hyman. These are: (1) Those with irregularities of rhythm; (2) those with endocardial and valvular changes; (3) those with manifest signs of decompensation. The first group is by far the most frequent type, perversion of the pace-maker mechanism and ectopic beats being the most common, but giving the best outlook. The picture is very easily confused with certain forms of heart

block which carries with it a much more serious prognosis, and all such cases should have electrocardiographic tracings made. With a proper recognition of the conditions, much can be done in handling these cases, and a great many sudden deaths prevented. The second group is less frequent, but is apparently of considerable importance because of the similarity to the effect of acute rheumatic fever. The third group is more serious and presents a grave outlook, usually resulting in cardio-vascular collapse, a distressing picture.

The severity of the original influenza attack shows little or no relation to the extent of the cardiac damage.

Absolute and prolonged rest and close observation are the main methods of combating these conditions.

Abstract—Tuberculosis of the Thoracic Wall with Extensive Abscess of Right Side and Lumbar Region, Simulating Pott's Disease.—Dr. J. A. K. Birchett, Jr.

Patient—Colored, female, aged 13 years; school girl.

Complaint—Inability to move on account of swelling in right leg, which resembles a cold abscess; pain in mid-dorsal region and fluctuant tumor in thigh.

Past History—Last August patient fell down stairs. Felt sharp pain in chest, which soon stopped. A week later pain was so severe that it made her sick. Sharp pain in right side of chest. Family physician told her she had pleurisy, and mustard plaster was applied until pain stopped. This required several applications. For two or three weeks was then out and feeling well. Pain then began again and a swelling, soft in the center, developed. This was incised and pus was evacuated. Patient had fever and there was a slight loss of weight during this time; no cough. Weight at the time of the fall was 135 pounds; had lost ten pounds between fall and opening of abscess. A sinus developed at the sight of abscess and another doctor was called. Roentgenograms were taken and a diagnosis of osteomyelitis of the ribs made. These pictures were taken Christmas day. Operation was advised.

After Christmas, thigh began to swell and was very painful and several times the size of the left thigh. There was high fever and pain was very severe in the leg.

Patient was first seen by me at this time. Had chills and fever last summer; no other illnesses. Began menstruating six months ago.

Family history negative for tuberculosis and cancer.

Physical Examination—Young negro female, very emaciated, and complaining of pain in the right thigh and hip. Temperature 102° F.; weight, 90 pounds; pulse, 130; blood pressure, 110/80; respiration, 20. There was a raw surface on the anterior chest over the fifth, sixth and seventh ribs, with evidence of rib destruction. Roentograms show normal lung tissue; no markedly enlarged glands in the mediastinum. Abdomen scaphoid, very thin type, no areas of tenderness, except in the right lower quadrant and in the region of the anterior superior spine of the ilium. There was a fluctuant tumor with bulging extending up the muscle planes to the lower border of the ribs on the right side. Pelvic examination not possible. Left leg was very emaciated; right thigh much larger than left, and there was a fluctuant tumor at the inner surface suggesting a cold abscess or psoas abscess. Skin very scaly and dry. Physical examination was otherwise negative. Roentogram showed no evidence of bone destruction in the spine.

Blood Examination—Hemoglobin, 62 per cent; leukocytes, 23,000; differential leukocyte count: small lymphocytes, 19 per cent; large mononuclears, 2 per cent; neutrophils (immature forms); 5 per cent; no malaria found. Wassermann and Kahn test negative. Urine showed slight trace of albumin and numerous pus cells.

Operation—The abscess in the thigh and right lumbar region was drained by a stab wound in the region of the anterior superior spine of the ilium.

At least two gallons of thick purulent material were evacuated and tubes placed for washing the deep cavities opened with Dakin's solution. The pus was from the lesion of the chest wall, having burrowed down and entered the muscle planes of the external and internal oblique muscles, then burrowing over or under the inguinal ligament into the thigh. The opening which was supposed to be a tract to the raw surface of the thorax was injected with Becks paste, but the roentgenogram did not show a tract. A piece of tissue was taken from the edge of the granulating surface for examination.

Examination of pus showed staphylococcus aureus; no tubercle bacilli found. Microscopic examination of tissue from chest wall showed tuberculosis.

One week after the first operation, a second was done under ether anesthesia and the diseased fifth, sixth and seventh ribs from the sternal articulations to the anterior axillary line and well back into the sound ribs removed. A large extrapleural abscess was entered after the ribs were removed and a quantity of purulent, caseous material was evacuated. The cavity was drained and washed daily.

Results—The general condition improved and pain was relieved almost immediately following the first operation. Patient is doing well, does not have fever, and is gaining in weight and strength.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of February besides the regular meeting of the Board of Directors the Society held one scientific meeting.

At the scientific meeting the program was as follows:

"Management of Birth Injuries Including Late Anatomical Repairs of the Perineum." Lantern slides. By Dr. Thos. B. Sellers. Discussed by Drs. Wilbur C. Smith and E. L. King.

"Cartilaginous and Osteo-Cartilaginous Rib Grafts in the Correction of certain Disfiguring Deformities of the Nose." By Dr. Waldemar R. Metz. Discussed by Drs. R. C. Lynch and A. I. Weil.

Motion pictures of the Movements of the Alimentary Tract. Given by the courtesy of the Petrolagar Company.

During this past month Dr. I. M. Gage, Chairman of the Scientific Essays Committee sent out

a circular letter to the membership with a schedule of the meetings for the year. The members were asked to fill in the dates on which they could present papers in order that we may have our programs filled. To date very few replies have been received, and the Chairman is very anxious to have the membership cooperate in this respect.

The following is the schedule of meetings for 1929:

March 11—Scientific Meeting.

March 25—Joint Clinical meeting with Charity Hospital Staff.

April 8—First Quarterly Executive Meeting.

April 22—Scientific Meeting.

May 13—Scientific Meeting.

May 27—Scientific Meeting.

June 10—Joint Clinical meeting with Charity Hospital Staff.

June 24—Scientific Meeting.

July 8—Second Quarterly Executive Meeting.
 Society in Vacation—July, August, September.
 October 14—Third Quarterly Executive Meeting.
 October 28—Scientific Meeting.
 November 11—Scientific Meeting.
 November 25—Scientific Meeting.
 December 9—Joint Meeting with the U. S. Marine Hospital Staff.

The following is a list of the committees for 1929, appointed by our President, Dr. E. D. Fenner:

Judiciary Committee—Dr. Frank J. Chalaron, chairman; Drs. Henry Bayon, Muir Bradburn, Foster M. Johns and J. P. O'Kelley.

Scientific Essays Committee—Dr. I. M. Gage, chairman; Dr. Chaille Jamison (Medicine), Dr. Jerome E. Landry (Surgery), Dr. Ernest E. Allgeyer (Eye), Dr. P. A. McIlhenny (Orthopedics).

Auditing Committee—Dr. C. A. M. Dorrestein, chairman; Drs. W. O'D. Jones, W. A. Knolle, F. A. Overbay and Sidney K. Simon.

Condolence Committee—Dr. Solon G. Wilson, chairman; Drs. John Smyth, E. A. Socola, N. F. Thiberge and J. C. Menendez.

State Medicine and Legislation Committee—Dr. Paul J. Gelpi, chairman; Drs. W. F. Heneerson, Emmett L. Irwin, Urban Maes, T. B. Sellers.

Librarian's Report Committee—Dr. I. I. Le-mann, chairman; Drs. Maud Loeber, Edward McCormac, Jules B. Rateau and J. D. Rives.

President's Report Committee—Dr. Chaille Jamison, chairman; Drs. Homer Dupuy, Jules Dupuy, John F. Dicks, H. B. Gessner, C. Jeff Miller and A. I. Wejl.

Secretary's Report Committee—Dr. Louis Levy, chairman; Drs. G. C. Anderson, O. C. Cassegrain, E. McC. Connely, M. J. Gelpi, Roy B. Harrison, Adolph Henriques, J. C. Menendez and J. J. Wymer.

Treasurer's Report Committee—Dr. H. W. Kostmayer, chairman; Drs. S. M. Blackshear, A. F. Hebert, E. H. Lawson, W. E. Levy, Leopold Mitchell and Arthur Vidrine.

Library Committee—Dr. D. N. Silverman, chairman; Drs. Lucien A. Fortier, H. L. Kearney, John A. Lanford, and Randolph Lyons.

Hospital Abuse Committee—Dr. A. E. Fossier, chairman; Drs. M. Earle Brown, Jerome E. Landry, E. S. Hatch and Alton Ochsner.

Publicity Committee—Dr. J. H. Musser, chairman; Drs. Henry Daspit and Shirley C. Lyons.

Periodic Health Examinations Committee—Dr. Jerome E. Landry, chairman; Drs. H. E. Miller, Martin O. Miller, J. T. Nix, J. T. O'Ferrall, W. J. Otis and W. H. Seemann.

Dr. Keith Kahn was elected to Active Membership in the Society, Dr. David C. Roberts and Dr. Chas. McD. Smith were elected to Interne Membership and Dr. Ernest C. Faust was elected to Associate Membership.

It is with regret that we report the death of two of our active members, Dr. Adolph O. Hoeffeld who died February 5 and Dr. James E. Pollock who died February 18.

REPORT OF TREASURER.

Actual Book Balance 12/31/28.....	\$1,239.94
Receipts during December.....	3,328.27
	<hr/>
	\$4,568.21
Expenditures	\$1,743.99
	<hr/>
Actual Book Balance.....	\$2,824.22

REPORT OF LIBRARIAN.

The reference work has been unusually heavy during the month of January. Six bibliographies have been prepared on subjects as follows:

Bronchography—Technique (1923-28).

Foreign Bodies in the Intestines (1923-28).

Tumors of the Trachea (1924-28).

Fibroma, Sarcoma and Myoma of the Stomach (1923-28).

Gastric Ulcer in Children.

Percussion (1919-28).

Thirty-one books have been added to the library.

Of these 19 were received by subscription, 4 by purchase, two by gift and six from the New Orleans Medical and Surgical Journal. Gifts of journals have been received from the following persons and agencies:

Drs. C. Jeff Miller, Maurice J. Gelpi, H. Dickson Bruns, J. L. Locascio, J. H. Musser, El Paso County Medical Society, Jackson County Medical Society.

A list of new accessions of recent date is appended.

Two chest of current journals (some 90 volumes) have been prepared and sent to the binders, in order that they may be back on the shelves for reference use at the earliest possible date.

NEW BOOKS.

Crowe—Bacteriology and Surgery of Chronic Arthritis and Rheumatism. 1927.

Long—History of Pathology. 1928.

Bram—Goiter Prevention and Thyroid Protection. 1928.

Wheeler—Laboratory Manual of the Massachusetts General Hospital. 1928.

Cramer—Fever, Heat Regulation and Thyroid Adrenal Apparatus. 1928.

Park—Public Health and Hygiene. 1928.

H. THEODORE SIMON, M. D.,
 Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

TO THE MEMBERSHIP OF THE LOUISIANA STATE MEDICAL SOCIETY.

It affords us pleasure to report progress in the work of all the Committees for the Annual Convention. The program for the gala night, the Semicentennial Celebration night, is about completed, and among the prominent speakers of the evening will be Dr. W. C. Rucker, Surgeon of the United States Public Health Service and our Dr. Rudolph Matas, both of whom are national figures.

The Golf Committee is making elaborate preparations for the golf matches, and will offer attractive prizes.

There will be a banquet at the Roosevelt Tip Top Inn the evening of Wednesday, April 10. This will also be one of the special features of our meeting, and we are promised a very large attendance. The Committee wishes to assure the membership that every effort will be made to make this a "treat" as in the past.

The scientific exhibits are in the hands of Dr. Foster M. Johns, and will no doubt prove one of the main drawing cards.

The Committee would like to be advised at as early a date as possible as to what papers will necessitate the use of projectors.

The Committee is expecting a large registration, and cherishes the hope that this meeting will be the banner one from a scientific, social and artistic standpoint.

PAUL J. GELPI, M. D.,
Chairman, Committee on Arrangements.

The annual meeting of the Louisiana State Radiological Society was held January 26, 1929 in the Roentgen-Ray Department of the Charity Hospital.

Many interesting films were demonstrated and case reports were made by Drs. Rutledge, Henderson, Granger and Fortier.

The meeting was presided over by Dr. Rutledge of Shreveport. Dr. St. Martin was vice-president and Dr. Fortier secretary. The new officers elected were Dr. T. I. St. Martin, President; Dr. E. C. Samuels, Vice President; and Dr. L. A. Fortier, Secretary. The next meeting place chosen was New Orleans.

PARISH MEDICAL SOCIETY OFFICERS FOR 1929.

The following Parish Medical Societies have elected officers for 1929 as follows:

Bienville Parish:

President—Dr. R. C. Ferguson, Arcadia.
Vice-President—Dr. O. O. Hammer, Arcadia.
Secretary-Treasurer—Dr. J. N. Blume, Arcadia.
Delegate—Dr. O. L. Wise, Bienville.

Jackson-Lincoln Bi-Parish:

President—Dr. W. S. Rutledge, Ruston.
Secretary—Dr. Marvin T. Green, Ruston.

Lafayette Parish:

President—Dr. A. J. Comeaux, Youngsville.
Vice-President—Dr. L. A. Prejean, Scott.
Secretary-Treasurer—Dr. W. J. Yongue, Lafayette.
Delegate—Dr. R. D. Voorhies, Lafayette.
Alternate—Dr. M. E. Saucier, Lafayette.

Natchitoches Parish:

President—Dr. J. C. Parrott, Montrose.
Vice-President—Dr. J. T. Keator, Bermuda.
Secretary-Treasurer—Dr. W. W. Knipmeyer,

Natchitoches.

Delegate—Dr. J. B. Pratt, Natchitoches.
Alternate—Dr. R. S. Roy, Natchitoches.

Franklin Parish:

President—Dr. J. D. Rogers, Winnsboro.
Vice-President—Dr. V. J. Funderburk, Winnsboro.
Secretary-Treasurer—Dr. A. J. Reynolds, Winnsboro.

Delegate—Dr. W. A. Mecom, Wisner.
Alternate—Dr. J. D. Rogers, Winnsboro.

Calcasieu Parish:

President—Dr. O. W. Moss, Lake Charles.
Secretary-Treasurer—Dr. L. Z. Kushner, Lake Charles.

Webster Parish:

President—Dr. R. E. Smith, Minden.
Vice-President—Dr. B. A. Norman, Minden.
Secretary-Treasurer—Dr. C. M. Baker, Minden.
Delegate—Dr. R. E. Smith, Minden.
Alternate—Dr. E. B. Godfrey, Minden.

MEETING OF THE ST. TAMMANY PARISH MEDICAL SOCIETY.

The Society met at Slidell Friday night, February 8, in the Community Room with the following members present: Drs. J. K. Griffith, F. R. Singleton, J. F. Polk and L. Roland Young. Dr. Lawrence Young attended as a guest. As there was not a quorum due to inclement weather and urgent calls the regular formality was dispensed with.

Dr. M. F. Wilson of the Department of Experimental Medicine of Parke Davis and Company rendered a brief talk on bacterins, immunogens, toxins, anti-toxins and serums after which two reels of movies were shown depicting the stages and processes in the manufacture of them. The next meeting will be held on the second Friday night in March at Covington.

L. ROLAND YOUNG, M. D.,
Acting Secretary.

At the recent Annual meeting of the Hotel Dieu Staff, the following officers, comprising the Executive Committee were selected to serve during the coming year:

President—Dr. J. T. Nix.

Vice-President—Dr. J. E. Landry.

Secretary-Treasurer—Dr. Lucien A. LeDoux.

Additional Members of the Committee—Drs. H. T. Simon, D. Murphy, Paul Gelpi.

LUCIEN A. LEDOUX, M. D.,
Secretary.

John Cecil Chapman, Colfax, Louisiana, Nashville Medical College, Nashville, Tennessee, who served two terms as Coroner of Grant Parish, and who served during the World War, at the age of 50 years, died January 22, 1929 in the Baptist Hospital, Alexandria, Louisiana, of pneumonia complicating influenza.

At a meeting of the Lafayette Parish Medical Society held December 21, 1928, at the Elk's Home at Lafayette, the following officers were elected:

President—Dr. A. J. Comeaux, Youngsville.

Vice-President—Dr. L. A. Prejean, Scott.

Secretary-Treasurer—W. J. Yongue, Lafayette.

Delegate to State Medical Convention—Dr. R. D. Voorhies, Lafayette.

Alternate Delegate—Dr. M. E. Saucier, Lafayette.

The following members were present:

Drs. M. E. Saucier, L. B. Long, M. R. Cushman, W. J. Yongue, R. D. Voorhies, A. R. Trahan, A. U. Arreteig, R. C. Johnson, L. O. Clark, A. J. Comeaux, C. E. Hamilton, L. A. Prejean, and Eric Guilbeau.

W. J. YONGUE, M. D.,
Secretary-Treasurer.

AMERICAN COLLEGE OF PHYSICIANS, THIRTEENTH ANNUAL CLINICAL SESSION.

The American College of Physicians will hold its Thirteenth Annual Clinical Session in Boston, April 8-12. Dr. Charles F. Martin, Dean of the Faculty of Medicine, McGill University, is President of the College this year, and Dr. John H. Musser, Professor of Medicine at Tulane University Medical School is President-Elect and will be induced to the Presidency toward the end of the Boston meeting. Dr. James H. Means, Jackson Professor of Clinical Medicine at Harvard Medical School and Chief of the Medical Service at the Massachusetts General Hospital is General Chairman of all Boston Committees having charge of arrangements for the Clinical Session of the College in April.

The program provides hospital visits, clinics, demonstrations and ward-walks during the forenoons at fifteen different Boston hospitals, and for general scientific sessions each afternoon and evening in the Assembly Room of the Hotel Statler, which will be headquarters. Eminent authorities in their special lines will present the results of their work before an audience competent to appreciate the value of the contributions.

The annual Banquet of the College will be held Thursday evening, April 11, when Dr. George E. Vincent, President of the Rockefeller Foundation, will deliver the chief address. The Convocation, for the conferring of Fellowships, will take place Friday evening, April 12. Dr. Charles F. Martin, of Montreal, will deliver the Presidential Address.

Programs and details may be secured from the Executive Secretary, E. R. Loveland, 133-135 S. 36th Street, Philadelphia, Pa., or Dr. Randolph Lyons of New Orleans.

ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER.

The annual meeting of the American Association for the Study of Goiter will be held this year at Dayton, Ohio, March 25-27. The primary object of this association is to bring together each

year men who are especially interested in the study of goiter and its associated problems. Members of state and provincial medical societies are eligible and cordially invited to participate as attending members.

The first day of the Dayton meeting will be given over to diagnostic clinics in the morning and several short papers during the afternoon, chiefly concerned with recent experimental work. On the second day, operative clinics will be held at the Miami Valley Hospital, St. Elizabeth's Hospital and at the Soldiers' Home Hospital. The afternoon of the second day and the morning and afternoon of the third day will be given over to the presentation and discussion of scientific papers.

AMERICAN PROCTOLOGIC SOCIETY.

The American Proctologic Society will hold its annual meeting in Detroit, May 13, 14, and 15. The Hotel Statler has been selected as headquarters for the scientific program, and the scientific and commercial exhibits.

Any Doctor of Medicine who graduated from a recognized medical school and who is a member in good standing of his county and state societies, and the A. M. A., and who is especially interested in proctology shall be eligible for election as an Associate Member of the American Proctologic Society.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held at New Orleans, Louisiana, April 29, 1929.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination.

H. S. CUMMING,
Surgeon General.

UNITED STATES CIVIL SERVICE EXAMINATIONS.

The United States Civil Service Commission announces the following open competitive examinations:

ASSOCIATE MEDICAL OFFICER.

ASSISTANT MEDICAL OFFICER.

Applications for associate and assistant medical officers must be on file with the Civil Service Commission at Washington, D. C., not later than June 29.

The examinations are to fill vacancies in hospitals of the Public Health Service, the Indian Service, and in other establishments of the Federal classified service throughout the United States.

PHYSICIAN, \$3,800 A YEAR.

ASSOCIATE PHYSICIAN, \$3,200 A YEAR.

Applications for the above-named positions must be on file with the Civil Service Commission at Washington, D. C., not later than June 29.

The examinations are to fill vacancies in hospitals of the Veterans' Bureau for duty throughout the United States.

PHYSIOTHERAPY ASSISTANT.

Applications for physiotherapy assistant must be on file with the Civil Service Commission at Washington, D. C., not later than May 7.

The examination is to fill vacancies in hospitals of the Veterans' Bureau and the Public Health Service.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

CORRESPONDENCE.

7124 Coles Avenue, Chicago,

January 31, 1929.

To The Editor:

The Bulletin of the American Medical Association of January, 1929, reprints an important article from your esteemed periodical on the subject of the use of English words by medical men.

My heartiest accord with your attitude is extended to you. No good comes from the abuse of our language, which is a treasure beyond power to express. All erroneous, illmannered or malicious applications of English words harm the common ideal of accurate thought and expression, and reacts to the injury of the speaker or writer. Furthermore, the medical profession itself is degraded by unworthy acts of its members.

Should a member of your Staff take time to study leading articles and editorials in the representative medical journals of America he will find great numbers of instances of the violation of the rules of grammar, of taste and of the common-

est regard for the order of thought and expression. Some castigation would aid the profession immeasurably.

Yours sincerely,

WELLER VAN HOOK, M. D.

To the Editor:

I do not believe that a physician should boast of anything accomplished by him but I do think he should stand and fight for merited credit when that is due him and especially when that credit has been wrongfully passed to another. Hence, this letter to your Journal which I ask you to publish.

In a lengthy article published in the State Board of Health bulletin, edited by Dr. Oscar Dowling a couple of years ago, on beriberi in Louisiana, credit was given, if I remember correctly, to Dr. C. W. Lewis of Eunice, as being the first to observe beriberi in Louisiana—this is an error. I discovered and recognized the fact that beriberi was prevalent in Louisiana and indigenous to the United States in 1898—a number of years before Dr. Lewis had seen any of his cases; in fact, I had reported of having seen, observed and treated forty cases of beriberi in Louisiana between 1898 and 1903, and stated in an article to the Journal A. M. A. that a number of other cases had come under the observation of my colleague in Abbeville, La.

My article in the Journal of the American Medical Association appearing January 10, 1903. This article brought many letters to me from prominent physicians in England and especially from India, which complimented me on having discovered that beriberi was indigenous in America and stated they had long thought that such was the case and wondered why no cases had been sooner reported. In a very able article by Scott and Herrmann of New Orleans on beriberi appearing in the Journal of the American Medical Association of June 30, 1923, I am given the proper credit by these writers on page 2084, and on page 2085 these authors say that my description in 1903 agrees very well with their observation among the patients in Central Louisiana. I had hoped that the author of the article in the State Board of Health bulletin of about a couple of years ago would have learned of his error and corrected it in due time but as this has not been done I ask space in our Journal for the correction.

Yours sincerely,

F. F. YOUNG, M. D.

NEW ORLEANS HEALTH INDEX.

During the week ending February 9, 1929, the death rate reached in New Orleans was 18.0, with

a total death rate of 148. The week previous the death rate was 19.7, and a total of 162 deaths.

DEATHS FROM AUTOMOBILE ACCIDENTS.

During the week ending January 26, 1929, the total number of deaths from automobiles in the City of New Orleans was 12, 10 of which were due to accidents in the city. This corresponds to 10 and 8 respectively the year previous. During the past year there were 95 deaths in the city from automobile accidents, and a total number of deaths of 110.

ADOLPH O. HOEFELD, M. D.

It is with a peculiar sense of loss that the Journal records the death of Adolph O. Hoefeld, M. D., who passed away in the City of New Orleans on February 5, 1929 after a lingering illness. The Journal feels that one of its good friends and sturdy workers has departed from this world. Dr. Hoefeld for many years was interested and actively cooperated in the management of the Journal. He was responsible in part for the taking over of the Journal by the Louisiana State Medical Society, and was on the first Journal Committee on which he served for some years. He was never a passive member of the Committee, but was always active and energetic in furthering the purposes of the Journal and helping in every way to make it one of the outstanding state publications. Even up until the time of his death he still maintained his interest in the Journal and was always a source of advice and help.

JAMES E. POLLOCK, M. D.

On Monday, February 18, 1929, Dr. James E. Pollock died suddenly at his home 4224 General Taylor Street of an attack of angina pectoris.

Dr. Pollock was born in Aberdeen, Mississippi and was 42 years of age. He was Assistant Coroner of the Parish of Orleans. He had been connected for the past fifteen years with the Coroner's office.

He was graduated from Tulane University in 1906, and at the time of his death was a specialist in pediatrics.

Dr. Pollock was well known and will be widely mourned by his many friends.

While never an officer he was a very active member of the Orleans Parish Medical Society, Louisiana State Medical Society, American Medical Association and the Southern Medical Association.

He is survived by his widow, the former Miss Alma Porzler and by one son, James E., Jr.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

TO THE MEMBERS OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION.

The Committee of Arrangements for the Semi-centennial Celebration of the Louisiana State Medical Society has the honor to tender an invitation to each and every member of the Mississippi State Medical Association. The special program of the occasion will take place the evening of Tuesday, April 9. This will be an event in our history, and promises to eclipse all the meetings of the past. We trust you will respond one and all to our cordial invitation.

PAUL J. GELPI, M. D.,
Chairman, Committee on Arrangements.

On February 8, the City Council of Columbus named Dr. W. L. Stallworth city health officer for the next two years. The other members of the board are L. E. Lide, merchant, and Robin Weaver, lawyer. The law requires the board to consist of a physician, a merchant and a lawyer.

Dr. W. R. May, Director of the Lincoln County Health Unit, has organized his department and is actively at work in the schools as well as in the sanitation of the dairies, restaurants, drug stores, barber shops, and meat markets in the county.

CANTON HOSPITAL OPENS.

January 22, the Madison County King's Daughters Hospital was formally opened to the public. The establishment of the hospital was made possible by the activities of the Business and Professional Women's Club and the King's Daughters. The county of Madison and the city of Canton also made appropriations. The hospital was furnished by civic organizations and individuals. It is a modern two-story brick structure.

Dr. W. W. Scott has moved to Jackson, Mississippi. He may be addressed at the Century Building.

Dr. J. M. Dampeer, Crystal Springs, is at the Mayo Clinic for treatment.

Dr. J. R. Johnson, House physician at the South Mississippi Charity Hospital at Laurel, has resigned to enter private practice.

Dr. R. J. Peterson, of Touro Infirmary in New Orleans and at one time House Physician of the Vicksburg Charity Hospital, succeeds Dr. Johnson at the South Mississippi Charity Hospital.

The March meeting of the South Mississippi Medical Society will be held in Hattiesburg.

The regular monthly of the Issaquena-Sharkey-Warren Counties Medical Society was held jointly with the Central Medical Society in Vicksburg on February 12. Their program was as follows:

1. "Looking Forward in Medicine"—Dr. John Darrington, Yazoo City.

2. "Caesarian Section in the Treatment of Eclampsia"—Dr. H. R. Shands, Jackson.

3. "My Method of Preparation, Operation and After Treatment in Abdominal Cases"—Dr. Julius Crisler, Jackson.

The regular Staff meeting of the Vicksburg Sanitarium was held February 11 at which time the following cases were reported:

1. "Lymphoblastoma (Hodgkin's Disease)"—Dr. A. Street.

2. "Tuberculosis of the Thoracic Wall with Complications"—Dr. J. A. K. Birchett, Jr.

3. "Post Influenzal Disturbances of the Heart"—Dr. L. J. Clark.

4. "Sinusitis as a Focus of Infection in Children"—Dr. E. H. Jones.

5. "Pneumonia Following Influenza"—Dr. S. W. Johnson.

Doctor C. H. Love, former County Health Officer of Lamar County, has been transferred to Monroe County, Aberdeen, where he is Director of the newly organized full-time Health Department. Dr. Love will have associated with him in the work Mrs. Lula Lott Hicks, R. N., Public Health Nurse, and Mrs. R. C. Griffin, Technician.

Doctor W. H. Cleveland, who has just finished training at the Indianola, Mississippi Public Health Training Station, has been elected Director of the Lamar County Health Department, Purvis, Mississippi.

Doctor T. Paul Haney, Jr., former Director of the Tishomingo County Health Department, Iuka, Mississippi, has been transferred to Holmes county where he will direct the Holmes County Health Department.

Doctor B. D. Blackwelder, who for the past several years has successfully directed the

Holmes County Health Department, will direct the Adams county Health Department. Doctor Blackwelder took active charge of the Health Department on January 1. This is the first year in full-time health work for Adams County. Doctor Blackwelder has associated with him in the work the following personnel: Miss Fannie Mae Askew, R. N., Public Health Nurse; Dr. W. C. Kailer, Veterinarian, who will be Meat and Milk be Meat and Milk Inspector, Mr. Wm. Liston, general Sanitary Inspector, and Miss Eliza McCabe, Secretary.

Doctor W. R. May, former physician of Amory, Mississippi, who has finished training at the Indianola, Mississippi Training Station for Public Health Workers, and who has since had some practical experience in public health work, was chosen Director of the Lincoln county Health Department. Doctor May will have Miss Syd Vaughan, R. N., Public Health Nurse, associated with him in the work.

Doctor J. W. Dugger, recently elected Director of the Bureau of Industrial Hygiene, State Board of Health, left Jackson on Monday, February 4, for Columbus, Ohio, where he will study the Industrial Hygiene program of the state of Ohio for two or three weeks, then going to Connecticut for a similar study. Doctor Dugger will assume the duties of his office March 1.

Doctor Mark Boyd of the Rockefeller Foundation who has been stationed at Edenton, N. C., for the past two years, has been assigned to the Mississippi State Board of Health to begin work March 15. Doctor Boyd will be in charge of malaria investigational and control measures for the State Board of Health and will have associated with him Mr. George Parker, and Mr. Nelson Rector, Engineers. Doctor Boyd will bring two technicians and his secretary with him. The technicians will be assigned to the State Hygienic Laboratory under the direction of Doctor T. W. Kemmerer.

Copiah county now has a full-time Health Department under the direction of Doctor J. A. Milne with Miss Seba Ates, R. N., Public Health Nurse.

SECRETARIES, ATTENTION!

There are twenty-one component organizations in the Mississippi State Medical Association. At the present time a third of these organizations have not reported their officers for 1929 to the State Secretary, Dr. T. M. Dye. Those who have reported are as follows:

Clarke-Wayne Counties Medical Society — Albert Hand, Shubuta.

Delta Medical Society—R. C. Finlay, Greenville.

East Mississippi Medical Society—J. E. Anderson, Louisville.

Holmes County Medical Society—F. L. Bott, Lexington.

Homochitto Valley Medical Society—Wm. K. Stowers, Natchez.

Issaquena-Sharkey-Warren Counties Society—Leon S. Lippincott, Vicksburg.

Jackson County Medical Society—J. N. Rape, Moss Point.

Kemper County Medical Society—V. M. Creekmore, DeKalb.

Leake County Medical Society—I. A. Chadwick, Carthage.

Northeast Mississippi Thirteen Counties Society—J. M. Acker, Jr., Aberdeen.

North Mississippi Six Counties Society—A. H. Little, Oxford.

South Mississippi Medical Society—J. H. Newcomb, Richton.

Tri-County Medical Society—J. R. Markette, Brookhaven.

The forty-fifth annual meeting of the Tri-States Medical Association of Mississippi, Arkansas and Tennessee was held at Memphis, Tennessee, February 6-7-8, 1929 with Dr. V. B. Philpot, Houston, Mississippi in the chair and Dr. A. F. Cooper, Memphis, as secretary.

The quality of the program is evidenced by the following names of those who participated therein: Dr. George Gellhorn, St. Louis; Dr. John H. Musser, New Orleans; Dr. Charles Metcalf Byrnes, Baltimore; Dr. Joseph A. Capps, Chicago; Dr. Vern Hunt, Rochester; Dr. Lawrason Brown, Saranac Lake; Dr. William A. Pusey, Chicago; Dr. George W. Crile, Cleveland; Dr. William E. Lower, Cleveland; Dr. Ray M. Balyeat, Oklahoma City; Dr. Barton Cook Hirst, Philadelphia; Dr. Harvey B. Beck, Baltimore; Dr. Frank Smithies, Chicago; Dr. Morris Fishbein, Chicago; Dr. Harvey J. Howard, St. Louis; Dr. Kennon Dunham, Cincinnati; Dr. Edwin Warner Ryerson, Chicago; Dr. Arthur C. Christie, Washington; Dr. Leonard G. Rowntree, Rochester; and Dr. A. Graeme Mitchell, Cincinnati.

This Association is unique in that there are no discussions of the papers and outstanding men in their respective specialties are always chosen to present the essays. For this reason particularly the meeting proved to be unusually interesting and instructive.

The officers for the ensuing year are:

President—Dr. P. W. Lutterloh, Jonesboro, Ark.

Vice-Presidents—Drs. R. M. Donald, Morehead, Miss.; L. H. McDaniel, Tyronza, Ark.; Dr. E. W. Hillsman, Trezevant, Tenn.

Secretary-Treasurer—Dr. A. F. Cooper, Memphis.

The American Association for the Study of Goiter will meet at Dayton, Ohio on March 25-27, 1929. Dr. S. D. Van Meter of Denver, Colorado, is president and Dr. Kerwin W. Kinard of Kansas City, Missouri, is corresponding secretary.

MISSISSIPPI MORTALITY STATISTICS.

Washington, D. C., January 31, 1929. The Department of Commerce announces that the 1927 death rate for Mississippi was 1,296 per 100,000 population as compared with 1,327 in 1926. This decrease in 1927 is more than accounted for by decreases in the death rates from influenza (from 84 to 34 per 100,000 population), pneumonia, all forms (from 93 to 72), typhoid and paratyphoid fever (from 22 to 15), and tuberculosis, all forms (from 110 to 103).

Increases in death rates in 1927 were from accidental drowning, due to flood (from 5 in 1926 to 14 per 100,000 population), pellagra (from 31 to 39), diseases of the heart (from 117 to 125), measles (from 4 to 10), diphtheria (from 7 to 11), and diarrhea and enteritis, under 2 years (from 29 to 33).

The last three items—measles, diphtheria and enteritis in children—bring to mind the fact that we are still failing to protect the child as we should. On the other hand, it is gratifying indeed to see the falling off in incidents of tuberculosis. This shows what strides have been made in the past decade. Diseases of the heart and kidneys are taking an increased toll and show that there is much prevention work for the physician to do.

The Board of Health is to be congratulated for the good work that is being done by its Bureau of Vital Statistics as well as for the work it is doing in preventive medicine.

DEATH NOTICES.

Dr. Covington Sharp, who had specialized in diseases of the eye, ears, nose and throat in Laurel for several years past, died, January 30, of pneumonia following an attack of influenza. He was buried in New Orleans.

Dr. J. B. Harris, sixty-seven years of age, of Stewart, Mississippi, died, January 26, at Jack-

son. Funeral services were held at Mulligan Springs near Stewart on the afternoon of January 28.

Dr. Harris was a graduate of the Louisville Medical College and Tulane University and had been in practice for more than forty years.

In 1893 Dr. Harris married Miss Nora Arnold at Walthall, Mississippi. He is survived by four children of this union who are: Mrs. Clyde Winters, Ruleville; Miss Bess Harris, Lucedale; Miss Nora Harris, Sidon; and Arnold Harris, Raleigh, North Carolina.

The Journal extends its sympathies to the family of Dr. Harris.

Dr. Thomas F. Elkin, of Tupelo, died at his home, January 30. Dr. Elkin had been suffering from a prolonged illness, and his death was not unexpected due to its seriousness for the last few weeks.

Dr. Elkin was born June 13, 1869 in Monroe County, Mississippi, his parents being Dr. Thomas Benjamin Elkin and Mattie Fitzgerald Elkin. He obtained his early education in the public and private schools of his native country, then entered the A. & M. College of Mississippi at Starksville. Upon completion of the prescribed work at this college he entered the University of Mississippi at Oxford. He was graduated with the degree of M. D. from Tulane University at New Orleans in 1891, and later took post graduate work in New York and Chicago. Dr. Elkin practiced medicine in Monroe County, Mississippi, for two years, then moved to Nettleton in Lee County, where he remained for six years. At the end of this time he went to Tupelo, Mississippi, where he has practiced his profession for the past thirty years. He was local surgeon for the Mobile & Ohio Railroad, and a director in the Tupelo Hospital, and previously a member of the Mississippi State Board of Health from 1916 to 1924. He was a member of the firm of Thomas-Kincannon-Elkin Drug Company, the largest drug firm in North Mississippi and was a director in The Bank of Tupelo.

Dr. Elkin was married to Miss Lottie Dale Armstrong in 1901, and to them was born two daughters, Ruby and Francis.

During his college days he was a member of the Delta Kappa Epsilon fraternity, and in his church affiliations he was a member of the First Methodist Church of Tupelo.

The Journal extends its sympathy to the bereaved family.

BOOK REVIEWS

The Ultra-Violet Rays: Their Action on Internal Nervous Diseases and Use in Preventing Loss of Color and Falling of the Hair: By Arnold Lorand, M. D. Philadelphia, F. A. Davis Company. 1928. pp. 258.

The first section of this book is concerned with the healing properties of natural and artificial sunlight, in such variegated conditions as disorders of the endocrine glands, high blood pressure, gallstones, ulcers of the stomach, old age symptoms, and cosmetic faults. The second part of the book devotes some 90 pages to the treatment of falling hair by the ultra-violet rays, while the third part of the book has to do with the treatment of graying hair by the quartz light. Any medical man interested in getting a new approach in the treatment of all these diseases and disorders by one method will get a certain amount of satisfaction from a perusal of this book.

J. H. MUSSER, M. D.

Practical Dietetics in Health and Disease: By Sanford Blum, A. B., M. S., M. D. 3d ed. rev. & enl. Philadelphia. F. A. Davis Co. 1928. pp. 380.

This book is a collection of carefully selected dietaries which (as Dr. Blum states) "can readily be modified to meet the needs of the individual case." The material is stated in such a way that one needs to spend only a few minutes to become familiar with the foods used for a specific purpose. Naturally there may be a difference of opinion about certain foods, but there is little danger of going far wrong if followed completely. It was never intended to be a scientific study of the principles of dietetics, and would be almost useless as a text-book; but as a reference book and guide in the selection of dietaries its value to one who knows the principles of dietetics yet has not been in the habit of prescribing diets, as is often the case with general practitioner or surgeon, can hardly be over-estimated. It is not difficult to understand that Dr. Blum has employed the included dietaries with success.

Although the chapters devoted to the treatment of diabetes are far from an exhaustive study they could be used until such cases, whenever possible, may be referred to an internist. Even when the diabetic diets are carefully worked out and with a good many changes in menus it is difficult to keep the patients satisfied, and the more intelligent ones grow neglectful after long periods of time. This is to say nothing of the many instances where it is impossible to teach the complicated methods of weighing and selecting foods.

The chapters on infant, childhood, and adolescence feedings are more complete and very practical. I notice that Dr. Blum recommends feeding babies very early. This is a little different from what we have been taught in most other modern dietetics, but only by use can we prove which is better. Very often people point out children to me that have been fed and most of them are strong healthy children. True they may be healthy in spite of the food given, but more than likely it is because of it, at any rate, the dietaries are carefully chosen and clearly and concisely stated.

All in all, this book on dietetics is what its name implies; and dietetics, no matter how scientifically perfect, means nothing unless expressed in foods for practical use.

O. E. WAKEFIELD, R. N.

Fever, Heat Regulation, Climate, and the Thyroid Adrenal Apparatus: By W. Cramer, Ph.D. D.Sc., M. R. C. S. London, Longmans, Green & Co. 1928. pp. 153.

There is a nervous and a humoral apparatus for heat regulations. Stimulation of the sympathetic increases metabolism and thereby increases heat production. While it diminishes heat loss through constriction of the cutaneous blood vessels it increases heat loss through stimulation of the sweat glands or for the arrectores pilorum. Stimulation of the sympathetic by increasing heat production and by preventing a compensating increase in the heat loss or actually diminishing it produces "sympathetic fever." In fever there is a change in the "internal thermal environment" due to the stimulation of the thyroid and adrenal glands. Conversely the functional activity of these glands can be brought into play by changing the "external thermal environment." Exposure to cold stimulates these glands to increase activity. Exposure to heat diminishes their activity. The thyroid and adrenal glands represent, therefore, a humoral apparatus for the heat regulation of the body. A bracing climate is one which stimulates the sympathetic and the thyroid and adrenal glands, a "relaxing" climate, one which fails to stimulate them. The so-called heat center in the tuber cinereum is explicable as a group of nerve cells representing the central connections of the sympathetic.

Conditions involving increased heat production such as a change from a hot to a cold environment or the "sympathetic fever" induced by the injection of pyrogenic substance, produces an intense secretory activity of the thyroid, of which the disappearance of colloid is the most obvious feature. Conversely change from a cold to a hot

environment which reduces heat production is accompanied by an accumulation of colloid and by pathological changes in the cells of the gland indicating diminished cellular activity. The liver, in virtue of its glycogenic function is regarded as the central organ of metabolism.

Pathological evidence that the thyroid adrenal apparatus is concerned in the heat regulation of the body is presented.

This investigation into the thyroid adrenal apparatus, fever and heat regulation had its origin in an investigation of the influence of various hormones, and of the thyroid hormone in particular, on the growth of cancer. Since it seemed possible that the regression of cancerous growths, when it occurred, was due to the condition of fever which had existed, this led to an investigation of the mechanism of fever. The book is, therefore, offered as a by-product of cancer research.

There are numerous very good illustrations.

HENRY LAURENS, PH.D.

Bacteriology and Surgery of Chronic Arthritis and Rheumatism: By H. Warren Crowe, D. M., B. Ch. (Oxon.), M. R. C. S., L. R. C. P., New York, Oxford University Press. 1927. 187 pp.

This book is a most modern contribution of ten chapters covering in a most artistic manner the writer's views of the bacteriology and surgery of chronic joint manifestations. His hypothesis is made most real by his careful checking and follow-up of his case records and experiments. It is most fortunate that this contribution should follow so closely a previous work, namely, "Treatment of Chronic Arthritis in Rheumatism," which has invoked so much favorable consideration by the profession. The text is most admirably arranged, beautifully illustrated and very attractive for reading purposes. Those interested in the solution of this long mooted question, namely rheumatism, will find in a review of this work the most modern conception of the phases of this disease which the author attempts to treat.

P. T. TALBOT, M. D.

Diseases of the Intestines: Including the Liver, Gall-Bladder, Pancreas and Lower Alimentary Tract: 3d ed. rev. & enl. Philadelphia, F. A. Davis Co. 1928. pp. 905.

The author has well covered the subject of the diseases of the intestines and lower alimentary tract in the limited space of one volume of 905 pages. The book is well illustrated with many text engravings and plates.

Laboratory procedures and technic for examinations of the intestines and lower alimentary

tract, pancreas, gall-bladder and liver are taken up in detail. And in many instances the author's work is original. The author has done extensive work on the examination of pancreatic enzymes, but we cannot agree that the potency of the various enzymes run parallel.

This volume covers for the first time the diseases of the liver, gall-bladder and ducts, and the pancreas. Diseases of the small and large bowel, including appendicitis; the rectum and anus, are fully taken up as to etiology, pathology, symptoms, diagnosis and treatment. The chapter on chronic excessive intestinal toxemia, described as a clinical entity is both interesting and illuminating.

The subjects are not arranged as a compilation of data but the personal experiences and original work of the author are noted.

HERBERT L. WEINBERGER, M. D.

Public Health and Hygiene: By William Hallowell Park, M. D. 2d edition, thoroughly revised. Philadelphia, Lea & Febiger. 1928. pp. 902.

The second edition of Dr. W. H. Park's book on Public Health and Hygiene is a welcome contribution to our knowledge of this subject. A large number of well-known contributors have collaborated with Dr. Park in the development of the work. The subject itself, or rather the subjects, are briefly but adequately covered and the diction is most excellent.

The book is divided into thirty-four chapters, dealing with all of the ordinary aspects of public health and preventive medicine as well as with sanitation, ventilation, water supply, personal, military, child, tropical and mental hygiene, and public health education. The chapter by Professor Winslow is very interesting on account of the new light shed upon the facts of humidity and temperature on the health of the individual. A chapter on cancer from the public health viewpoint by Dr. Soper is also very interesting.

Dr. Park has incorporated the results of the investigations of himself and his colleagues on prevention of diphtheria, the administration of toxin-antitoxin and comments on the permanence of the immunity produced. These remarks from this well-known investigator on the subject are worthy of the closest attention by all physicians.

The book, besides being a collection of scientific facts dealing with the transmission and prevention of disease, makes interesting reading for anyone who desires information on the broad subject of individual and public health maintenance. It is a book that should be in the library of every practicing physician and public health official.

L. C. SCOTT, M. D.

Laboratory Manual of the Massachusetts General Hospital: By Roy H. Wheeler, M. D., and F. T. Hunter, M. D. 2d ed., enl. and thoroughly rev. Philadelphia, Lea & Febiger. 1928. pp. 101.

A brief and accurate guide in laboratory procedure that may prove of use to the general practitioner.

I. L. ROBBINS, M. D.

Physician and Patient: Edited by L. Eugene Emerson. Cambridge, Harvard University Press. 1929. pp. 244.

This book consists of a group of lectures on the physician and the personal care of the patient, from the Harvard Medical School. It is a subject of vital importance and strikes at the very heart of the successful practice of medicine in its most humanitarian and social aspects. The book should be recommended to all students and both physicians and students may read it with great profit to themselves. The chapter entitled "The Medical Education of Jones, by Smith," is most excellent and doubtlessly refers to Dr. Osler. I recommend it most heartily.

I. L. ROBBINS, M. D.

The Brain from Ape to Man: By Frederick Tilney, Ph.D., M. D. (With chapters on the reconstruction of the gray matter of the primate brain stem by H. A. Riley, A. M., M. D.) New York, Paul B. Hoeber, Inc. 1928. 2v. pp. 1220.

Doctor Tilney presents in this work a survey of the brains of eleven primates representing a succession from the lower members of the group to the higher anthropoids and man. The available evidences of primitive man are inserted in the series, the whole forming a stimulating account of evolutionary sequence.

The purpose of the book is the assembling and discussion of the evidences of evolution displayed in the brain. A descriptive section is accordingly devoted to each of the forms, treating the surface anatomy of the brain and internal structure of the brain stem. There is, further, an analysis of the critical modifications in behavior of the particular animals, to correlate with their varying cerebral structures. Demonstration is presented that the evolutionary process is reflected in parallel changes of behavior and brain structure. This process is most apparent in accessions to the function of neokinesis (the reactions determined by neural combinations assembled in the cerebral cortex, exclusive of olfactory regions, and projected via the pyramidal system) and corresponding modification of the structures regulating it. Neokinesis attains its highest expression

with the assumption of an upright posture and bipedal locomotion, the hand being released for specialized performances.

Though the subject of human evolution has a wide appeal the general reader is likely to be discouraged by the extensive presentation of technical details. The book will be of particular value to those interested in such fields as zoology, anthropology, anatomy and psychology.

HAROLD CUMMINS, Ph.D.

Physical Education Activities for High School Girls: By the Staff of the Department of Physical Education for Women, University of Michigan. Philadelphia, Lea & Febiger. 1928. Illus. pp. 322.

Although the authors make modest claim for their work it is nevertheless an exhaustive work on the subject. It deals with the organization and administration of the physical activities. In another chapter physical examination forms are given and following conference on the physical defects found in the girls—gymnastics are ordered for both the individual and groups—a great many games, tournaments and meets are described most fully. It should prove a veritable treasure trove to those engaged in this work.

I. L. ROBBINS, M. D.

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GENITAL TUBERCULOSIS.*

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AND

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ROCHESTER, MINN.

If the mode of entry of an infection is unknown and the method of treatment is uncertain, interest in the subject is always aroused. Tuberculosis of the genital tract is no exception to this rule, as a review of the literature will show. Is the disease primary in the epididymis, vesicles, or prostate? How often is the urinary tract also involved? Should epididymectomy be performed? Is removal of the entire seminal tract preferable to epididymectomy? If epididymectomy is performed what are the chances of the remaining epididymis becoming involved? Can epididymectomy be considered a curative procedure or only a palliative one? What are the chances of formation of sinuses postoperatively? If they occur, how long do they persist? What is the life expectancy in these cases? If treatment is not instituted what will be the outcome? What are the determining clinical signs of tuberculous and non-tuberculous epididymitis? These are some of the many questions uppermost in the physician's mind when he encounters a case of tuberculous epididymitis.

With these questions in mind, we have reviewed 300 cases which we observed

at The Mayo Clinic prior to January, 1923. One hundred and seventy-five of the patients were operated on. The cases occurring within the last five years have been excluded in order that the final results might be better determined.

DIFFERENTIAL DIAGNOSIS.

In the diagnosis of tuberculosis of the genital tract evidence of a tuberculous lesion elsewhere should be looked for, naturally in the urinary tract first. If it is found, the probabilities are that the thickened epididymis is tuberculous. In seventy-five of our cases dysuria was present and in all but seven renal tuberculosis was demonstrable. The indications are that dysuria is strong presumptive evidence of urinary tuberculosis and not a common symptom of genital tuberculosis.

In 112 of the 175 surgical cases, all verified by microscopic examination or removed tissue, there was no sign of tuberculosis other than that of the genital tract. In the remaining cases there was evidence of pulmonary involvement in thirty-six, of renal involvement in thirty-three, of disease in the bones or joints in nineteen, and of disease of the lymphatics in eight, giving a total of 54.8 per cent of associated tuberculosis outside of the genital tract.

If associated tuberculous lesions are not demonstrable, a diagnosis of acute tuberculous epididymitis must not be made too hurriedly for in acute cases tuberculous and non-tuberculous infections appear very similar in the prostate and vesicles. As time goes on the non-tuberculous infection

*Read before the Louisiana State Medical Society at Baton Rouge, April 10 to 12, 1928.

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in the prostate and vesicles subsides, while the tuberculous infection tends to progress. The prostate was involved in 52 per cent of our cases. It was described as irregular, firm and nodular; occasionally one had softened areas.

The history of previous epididymectomy, orchidectomy, or the incision of a scrotal abscess has justly been considered strong evidence that the lesion of the remaining epididymis is probably tuberculous. The presence of a discharging sinus is almost pathognomonic, although in some instances it may indicate gumma. Tuberculous sinuses are usually posterior, while those from gumma are more likely to be anterior. Ninety-seven of the patients in our series had received surgical treatment previously; fifty-eight incision of scrotal abscesses, six epididymectomy, and thirty-three orchidectomy; 108 patients had discharging sinuses.

As the non-tuberculous lesions are usually unilateral, the presence of bilateral epididymitis probably favors a tuberculous origin.

PRIMARY SEAT OF INFECTION.

To answer the question regarding which of the genital organs will be involved first in a tuberculous infection appears to be almost hopeless. It is possible that any one of the organs may be initially involved. The main arguments relative to treatment, however, depend on the settling of this point. If the epididymis can be shown to be the initial site of the disease, the simple procedure of epididymectomy becomes logical. If, on the other hand, it is shown that the disease originates in the prostate or seminal vesicles, the radical removal of the seminal tract would be the logical procedure.

Those who believe that the prostate is the initial site of the disease point out that when apparently recent tuberculous lesions are found in the epididymis the process is usually far advanced in the prostate and vesicles and that the lesion usually de-

velops in the lower pole of the epididymis, where it would be expected that infection by way of the vas deferens would first appear.

Young, in a most comprehensive article on the subject in which he advocates the radical removal of the entire seminal tract, asserts that the primary focus is in the seminal vesicles.

Clinical evidence seems to indicate that the disease is primary in the epididymis for there are innumerable incidences in which examination of the prostate after epididymectomy shows that, where formerly the prostate was firm and nodular, it has become much smoother and softer and frequently scarcely palpable. The same is true of the seminal vesicles.

In twenty-five cases in our series in which subsequent examination was made some time after epididymectomy the prostate and seminal vesicles appeared to be normal; in thirty-five others it was nodular, but apparently not causing trouble. In only one case was a subsequent operation on the prostate or vesicles necessary.

Involvement of one seminal vesicle was noted in sixty-eight cases in all of which the epididymis on the same side was affected. In sixteen of these the opposite epididymis was also involved, although the vesicle on that side felt normal.

This would suggest that the infection did not travel through the vesicles to the other epididymis, but that it was primary in the epididymis, and seems to explain the improvement noted following epididymectomy.

ASSOCIATED URINARY INFECTION.

There are many references in the literature to the incidence of genital tuberculosis as a complication of urinary infection. Braasch in 1920, reporting 234 cases of renal tuberculosis, noted that there was genital infection in 171 (73 per cent). It is difficult to find in the literature estimates of the percentage of urinary tuberculosis complicating genital infection.

In our series of 300 cases renal tuberculosis was found to be present in 110 and developed after epididymectomy in seven. It would seem that there is a 36 per cent chance of the association of renal tuberculosis with tuberculosis epididymitis. Since in 35.7 per cent of the cases of bilateral involvement there was renal tuberculosis and since in 37.1 per cent of the cases of unilateral involvement there was renal infection the chances of an associated renal tuberculosis seem about equal whether the epididymis is involved on one or both sides.

In fifty-three cases in which only one kidney was affected the epididymis on the same side was affected in twenty-three cases, on both sides in twenty-one, and on the opposite side in only nine. There appears to be an overwhelming chance that when there is associated renal tuberculosis it will be found on the side of the affected epididymis.

ANALYSIS OF URINE.

Microscopic examination of the urine was made in 293 cases. It was negative for the bacilli of tuberculosis in ninety-two and positive in sixty-four. Thirty-six of the latter were in the surgical group and renal tuberculosis was demonstrated in all but five. Two of the patients died within three years, presumably of renal tuberculosis; nephrectomy for tuberculosis was done later in two cases and the fifth patient died of cardiac disease. This would seem to indicate that bacilli of tuberculosis are rarely found in the urine in cases of tuberculous epididymitis unless there is also tuberculosis of the kidney.

INVOLVEMENT OF THE REMAINING EPIDIDYMIS.

In 109 of our cases, approximately one-third, bilateral involvement was noted on examination and involvement of the remaining epididymis was noted in thirty-eight cases, the other having been previously removed, presumably because of tuberculous infection. With these percentages in mind it is interesting to note the incidence of involvement of the remaining epididymis following epididymectomy.

Keyes says, "Be the operation ever so slight or ever so radical, relapse on the other side almost invariably occurs."

In our series of 175 surgical cases there were only eighty-nine in which extension to the remaining epididymis was possible because of previous operation or infection. Seventy-one patients are living and twenty-eight (39 per cent) have tuberculosis in the remaining epididymis.

It would appear that epididymectomy does not tend to lessen the involvement of the remaining epididymis, yet the fact that in 82 per cent of the cases it became involved within one year after operation indicates the possibility that it was microscopically involved at the time of operation and became noticeable grossly during the year. If this is true, the operation is responsible for the low incidence of extension later, since during the second year only 6.5 per cent became involved, and from two to ten years but 10 per cent. After this time involvement was infrequent.

SINUS FORMATION.

Epididymectomy, while primarily intended to prevent extension of the disease, also at times removes and prevents sinus formation. Unfortunately this is not always the case, for, as in all tuberculous processes, sinuses develop. In our 175 surgical cases healing occurred within a month in seventy-two and during the first year in seventy-five. In eight cases a sinus persisted for two years and in two for seven years. Several of the patients in replying to our questionnaire volunteered the information that healing did not commence until they exposed themselves to sunlight, following which healing was rapid.

PROGNOSIS

Of the series of 175 patients treated surgically eighty-five are known to be alive for from five to seventeen years after operation. Thirteen others were in good health when heard from during the five

year period but did not answer the questionnaires. As these were not returned from the post office, the probability is that they were received and not answered. In this event 56 per cent of the patients are alive more than five years. Eighteen patients (10.2 per cent) died from tuberculosis of the urinary tract; nephrectomy had been performed on sixteen of these at the time of their examination. Seven others who were free from renal tuberculosis at the time of operation later contracted the disease. Fifteen patients (8.6 per cent) died of pulmonary tuberculosis. Four died from other forms of tuberculosis, making a total of 21 per cent of cases in which death was attributed to tuberculosis. If we consider that all patients not heard from have died from tuberculosis and exclude nine who died from other causes, there is 61 per cent of good results. These good results we attribute to the large percentage of cases of renal tuberculosis discovered at the time of examination, and to the prompt surgical treatment. This is further emphasized by the low incidence (10 per cent) of later deaths from renal tuberculosis.

Forty of our patients had atrophy of the testicle following operation and thirty did not: a four to three chance that the testicle will atrophy following epididymectomy. Since there appears a 39 per cent possibility of extension to the other side with the necessity of a second epididymectomy, the possibility of bilateral atrophy would seem a serious contra-indication to surgery. Unless suppuration is present or evidently will occur and there is annoying weight and pain, heliotherapy where available should certainly be carefully considered as an alternative to surgery. Unfortunately, few can spare the time or bear

the expense for this form of treatment and so for the majority, surgery offers the most available chance of relief.

CONCLUSIONS.

In conclusion it may be emphasized that:

1. Dysuria is a symptom of urinary tuberculosis and does not occur when the disease is confined to the genital tract.
2. The presence of the bacilli of tuberculosis in the urine indicates renal involvement.
3. Unless the urine is negative microscopically, cystoscopy should be done in all cases of chronic tuberculous epididymitis.
4. Involvement of the remaining epididymis may be expected in 39 per cent of cases following epididymectomy.
5. This will occur in most cases within a year.
6. There is a 7 per cent chance that renal tuberculosis will develop after epididymectomy.
7. Satisfactory late results may be expected in more than 60 per cent of cases.

DISCUSSION.

Dr. H. W. E. Walther (New Orleans): I think that a tuberculous diathesis must be considered in all unusually prolonged instances of "gonorrheal" epididymitis. We still have a great deal of Neisserian infection to treat and we will always see a fair proportion of these cases develop epididymitis, a most painful and oftentimes very distressing symptom to the patient, incapacitating, and sometimes very troublesome for the doctor to get any results. We have noticed in our practice that these so-called obstinate cases of gonococcal epididymitis, where there is no response to therapy, mostly occur in rather thin emaciated males and I cannot help but feel that where the Wasserman is negative and we can find no evidence of malignancy, that tuberculous diathesis must be considered. So along with the

usual treatment that we direct in these infections we should carry out the tuberculosis regime of rest, sunlight, or ultra-violet lamp, plenty of food and fresh air; in fact, the usual treatment employed in pulmonary tuberculosis. Foreign protein, therapy, used ordinarily and with somewhat good results, is rather to be condemned here for it seems to light up these conditions with tuberculous diathesis. Furthermore, with diathermy, which is employed a great deal in the treatment of epididymitis, we notice in this type we do not seem to get good results; on the contrary, it appears rather to aggravate the condition.

Ballenger of Atlanta, when he encounters hydrocele as an accompanying condition aspirates the hydrocele fluid and reinjects it in the buttocks, continuing the treatment, giving the injections every four or five days. He says tuberculous epididymitis responds miraculously to this treatment. Just what there is in the serum from hydrocele I do not know but he reported a series which is quite interesting.

Then we have Keyes' operation. He advises incising the epididymis from pole to pole, first, of course, suturing the tunica to the skin, opening the epididymis wide, curetting and leaving open. He says these tracts do not heal sometimes for a year. He has good results by that operation, but whether it will cure the infection time only will tell.

After tapping or puncturing a scrotal abscess we know that we often find fistulous tracts we feel are due to tuberculosis. Here ultra-violet light helps. When the seminal vesicle and prostate are involved, try ultra-violet. Keyes states that when French urologists encounter unilateral tuberculous epididymitis, they (due to their experience of past years in finding such a large percentage of recurrences on the other side) at the time of operation do a bilateral epididymectomy.

Dr. Abe Mattes, (New Orleans): I believe if we could voice the experience of the urologists throughout the world in regard to genital tuberculosis we would find there is quite a difference of opinion as to the treatment indicated in the cases encountered. In our colored service at Charity Hospital I can only remember one case in ten years that came back for epididymal involvement in the remaining testicle. We see ordinarily about a half dozen cases of tuberculosis of the epididymis in our service during the year, quite a contrast to the high incidence of tuberculosis, pulmonary, renal and otherwise. The conserva-

tive measures, by which I mean curettage, excision of tract and, in more marked cases, orchidectomy, serve to remove the cause of disability. In the last few years I have seen several cases of seminal tuberculous secondary to renal tuberculosis, the condition making its appearance after the tuberculous kidney had been removed. Two cases in which the prostate and seminal vesicles became involved following nephrectomy for renal tuberculosis, much to my surprise, subsided under the ordinary treatment adopted for tuberculosis.

I certainly enjoyed Dr. Bumpus' very interesting paper.

Dr. H. W. E. Walther (New Orleans): I would like to ask a question. I am well aware that the Mayo Clinic believes quite widely now in biopsy work. Would it be contraindicated in tuberculosis where we have a lesion of which we are in doubt as to operating on the epididymis? Would that be one time when you would do a biopsy?

Dr. H. C. Bumpus (closing): In answer to Dr. Walther's question regarding biopsy, I believe that would depend on the acuteness of the disease. We had two patients who developed meningitis after operation had been carried out in a subacute case. There is evidently a greater chance of spreading the tuberculosis organism from a subacute epididymitis than is usually supposed.

I purposely left out anything in regard to the treatment of this condition because of the short space of time. When Dr. Young was in Rochester some years ago he spoke on this subject. He believes the entire seminal tract should be removed and stated that if the urologists would go back to their records they would find very few cured cases by conservative surgery after five years, so in making this study we left out all the cases that have been treated within the last five years, and we found 60 per cent of good results after that period. We tried Young's radical operation in nine cases; four died, four are living and one we have been unable to trace. Of the four we were able to get in touch with, three are in good condition and one has a discharging sinus. That certainly shows no better result than by the conservative method.

There is no doubt about the advantage of heliotherapy or ultra-violet light, but that requires a considerable expense. This treatment has been carried out on service men who were put to bed and kept there a year. There are very few patients we can confine to bed for such a length of time to give them the advantage of heliotherapy.

COMMON DISORDERS OF THE COLON OBSERVED IN THE TREATMENT OF THE CHRONIC INVALID*

E. L. EGGLESTON, M. D.,

BATTLE CREEK, MICHIGAN.

Disorders of the gastro-intestinal tract have received considerable comment by the profession during the past few years, but most of this attention has been centered on the upper part of the tract. Peptic ulcer, malignancy, and biliary tract troubles have largely monopolized the space in medical literature. The colon and its disorders have escaped the critical study warranted by the disability resulting to the individual thus afflicted. For some years, we turned the colon over to those who served the interests of the manufacturing chemists and they vied with one another in their efforts to provide new cathartic combinations. Little did we realize that we were placing a mortgage on the future comfort of our patients, a mortgage which many are paying today.

Recently, there has been a decided change in the trend of literature and we note that the lower gastro-intestinal tract is receiving its share of attention. We recognize that the individual complaining of marked symptoms indicative of functional misbehavior on the part of the colon, is not well and is entitled to legitimate study rather than a curt dismissal with a diagnosis of neurasthenia. I wish to discuss some of the troublesome conditions of the intestinal tract which we meet in institutional practice that are difficult to diagnose and where a satisfactory treatment can only be determined after careful observation and study. The term colitis is used somewhat loosely by the profession. Strictly speaking, it indicates an inflammation of the colon but it is used frequently to designate certain functional disturbances where the pathologist could not agree with the diag-

nosis. Discussing this subject, Hurst says:

"No diagnosis is made more frequently and with less justification. Usually when colitis is diagnosed, a name indicating an organic disease is given to explain symptoms which are functional, and much time and money are spent on vaccines, intestinal douches and visits to spas, when nothing more than a little judicious psychotherapy is required. On the other hand, the same diagnosis is often made when cancer of the colon or rectum is really present, and weeks are allowed to pass with futile bacteriological and local treatment until all chances of cure by a radical operation are lost. It is clear, therefore, that colitis should never be diagnosed until a thorough investigation has shown that inflammation of the colon—nothing less and nothing more—is present."

We are all familiar with the acute colitis which is met with most frequently in children during the warm weather. It is due to some specific infection usually introduced with food which is undergoing decomposition, or it may be due to the development of certain types of bacteria, possibly normal inhabitants of the intestinal tract which have become pathological as the result of a lowered resistance on the part of the individual. These infections are usually exogenous and apparently attack the intestinal walls from contact with the intestinal contents. We are not particularly concerned with these today. We are more interested in the chronic forms of colitis, those types that may be due to infections blood borne or possibly to parasites introduced with food or drink.

A strictly typical colitis is the chronic ulcerative type, which may be conveniently classified, etiologically, into five groups: First, the tubercular form; second, those cases resulting from malignant growths; third, the amebic or bacillary type; fourth, those cases found in typhoid states, or pellagra, or as terminal findings in certain wasting diseases; fifth, the so-called non-specific type. The first two types I shall not attempt to discuss. The third, or amebic type of ulcerative colitis, is seen in this section of the country very frequently. It was formerly considered to be limited to

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

the Southern portion of the United States, but is now being reported from all sections of the country. The diagnosis is frequently being over-looked because of insufficient laboratory study or because of its peculiar clinical manifestations. The following case will illustrate this:

Case I. Early in 1926, I was called in consultation to see a patient who had been ill a few weeks. The clinical diagnosis of intestinal flu had been made early in the course of the illness. The patient had complained of abdominal pain, tenderness in the right upper quadrant, backache, and his temperature which was high early in the illness, was at this time 102.5° to 103° daily, with a pulse rate in the nineties. There had been no definite indications of diarrhea at any time in the history of the case to date. Because of a slight enlargement of the liver with some tenderness, it was at this time considered that the gallbladder might be involved and operation had been advised. I was unable to agree as to the necessity of operation and it was postponed. A couple of weeks later the patient came under my personal care. I studied the case for at least three weeks without arriving at a definite diagnosis. The temperature persisted, some days going as high as 104.5° . At no time did the patient exhibit a diarrhea though he did have two and some time three unformed bowel movements daily. Finally, in an examination of the warm stool, a few *entameba histolytica* were found, and it was decided to treat the case as a possible amebic infection. He was accordingly given emetin by hypodermic injection. The day following the first injection, the temperature dropped to 101.5° and after the second injection it became normal. After two weeks' treatment there was a slight rise in temperature and it was decided to resort to stovarsol by mouth. In three weeks the patient was discharged, with suggestions as to proper follow up treatment. He has been under observation at intervals up to the present, and has experienced three or four mild relapses with rectal or lower sigmoid ulceration, but at no time have we discovered the *entameba histolytica*, although careful examinations have been made. The treatment giving most satisfactory results in the later stages has been stovarsol by mouth and mercurochrome by rectal injection. In reporting an observation made recently, the proctologist reports a rectal lesion slightly suggestive of malignancy.

Whether this case was a peculiar type of amebic dysentery from the beginning, or whether the patient originally suffered

from an influenzal attack, on which the amebic type of colitis was grafted later, is in my opinion difficult to determine. The promptness with which the symptoms yielded to the specific amebic treatment would warrant the belief that the infection was primarily one of amebic colitis. A further question as to whether the patient had been completely relieved of this infection is very pertinent, in view of a more or less frequent recurrence of rectal or lower colon ulceration with occasional attacks of diarrhea. We can all recall cases of amebic dysentery where the symptoms were severe and where there was a marked tendency to recurrences. I have a man under my care at the present time who has suffered from frequent attacks of diarrhea for twenty years. Proctoscopic examination showed numerous ulcers in the rectum, suggesting an amebic invasion of the mucosa, and laboratory examination revealed the presence of many active *entameba histolytica*. Many of these cases must be treated surgically in order to obtain relief. My observations would lead me to believe that the treatment of recent years—emetin, stovarsol, yatrín, etc.—has been a great improvement on former methods, and that surgery is demanded far less frequently. This subject has been exhaustively discussed by James and others, and I shall not attempt a thorough discussion of the therapy. It might be well to call attention to the fact that unfavorable results have been observed in a number of cases after the use of stovarsol. Because of its high arsenic content it is not well tolerated by some individuals; therefore, it is well to keep the patient under close observation and to be on the lookout for early arsenical effects.

I wish to discuss at greater length those cases formerly classified as chronic, non-specific ulcerative colitis. Previously, they have been supposedly rather rare, but since the published works of Bargen, Logan and Buie it is a question if we have not been

over-looking a considerable number of them. Bargaen reports:

"From January, 1924, to January, 1927, 385 cases of chronic ulcerative colitis were observed at the Mayo Clinic. In 266 of these the material obtained through the proctoscope was cultured according to the methods of Rosenow; a pneumococcus-like diplococcus of characteristic morphologic and biologic properties was isolated in 189 (71 per cent) of these. Such an organism was always found in the acute or sub-acute cases."

His work would tend to prove that we are dealing with a specific infection, and while his findings have not yet been generally accepted as to etiology, reports from others are being received from time to time which corroborate them. There is no doubt but that diplococcus with typical cultural properties may be obtained from the ulcers in these cases, but whether this is the specific cause or not, may not have been definitely proven. We see a great many different forms of colon disturbance in our clinic but we do not see, in proportion, nearly the number reported by Bargaen and his associates. A definite diagnosis of non-specific ulcerative colitis is not made in our institution in more than fifteen or twenty cases per year.

I. The diagnosis of non-specific ulcerative colitis must be made with care in order to differentiate from the tubercular and amebic types, also from pellagra where we occasionally have ulcerations in the colon as a terminal finding. The most classical findings on which the diagnosis is based are the pin-point ulcers or miliary abscesses, in the lower sigmoid and upper rectum, found by sigmoidoscopic examination. These are observed in all cases where the disease is active, but since there is a marked tendency to remissions in the trouble, there may be times when they are absent and they also may be found when the patient is clinically well. Later on in the disease, the pin-point abscesses coalesce, forming large ulcers, more suggestive of the amebic type, as illustrated by Case III. reported later. Careful proctoscopic examination in ulcerative colitis is

essential to a proper diagnosis. It is most unfortunate that the proctoscope is so neglected by the medical profession. It is used by the proctologist but the ordinary internist rarely feels that he is justified in resorting to this type of examination. This no doubt results in a great many cases being over-looked, which means especially in the malignant cases, that much valuable time has been lost and the patient's chances of surgical relief greatly lessened, and, moreover, in non-specific ulcerative colitis if the diagnosis is made early, before the colon has been badly damaged, the possibility of complete cure is much greater than where the disease has become chronic.

II. The presence of pus, mucus and blood, both occult and microscopical, are constantly found in the stool during the active stages of the disease. At times a bowel movement will contain practically no fecal matter, the mucus, blood and pus constituting its entire bulk. Careful and repeated stool examinations are essential to a proper understanding of these cases, not solely on account of the microscopical findings, but also on account of the bacterial findings.

III. According to Bargaen: "Recent investigations of the disease seem to have established the fact that it is due to infection of the colon by a specific causative organism * * * a gram-positive, lancet-shaped diplococcus of characteristic morphologic and biologic properties." We have corroborated these findings in a number of our cases. We may further say that we have also found this, or a similar organism, in rectal ulcers of a type not suggestive of the non-specific variety and we would wish to withhold our opinion as to this being the definite etiological factor. Brown states:

"As regards the bacteria found, we have not been able to incriminate any specific form from careful cultural studies made from stool, from mucosal scrapings, or from material obtained directly from the appendicostomy or cecostomy discharges—the picture was protean—in many cases

organisms not differing from those usually found. In one case the bacillus *Welchii* strongly predominated, both in rectal and appendicostomy specimens; in another case, a streptococcus with diplococcal arrangement. In one case a Gram-positive anaerobic diplococcus also obtained in almost pure culture from the appendix when opened for an appendicostomy."

Hurst believes that the cases which he has observed are more likely to result from an infection of the bacillus dysentericus.

IV. The history of the case is very valuable in establishing a diagnosis, as the physician may be consulted at a time when it is impossible to definitely arrive at a proper diagnosis from the physical findings. If the case is a chronic one the patient will report periods of great prostration with marked diarrhea, blood, pus, and mucus in the stools, and a definite anemia of a secondary type. The ulcerations at times heal very rapidly only to recur at a later time with definite appearance.

V. The roentgen-ray findings are supposedly of assistance in arriving at a proper diagnosis, especially when the site of involvement is above the rectum and sigmoid. Some radiologist report a peculiar mottled appearance which they believe to be indicative of ulcerations, but probably the more definite findings are such as are found in the severe forms of colitis or other types, such as spasticity, strictures, adhesions, disappearance of haustral markings, the appearance of the affected parts suggesting a smooth inelastic tube.

I should like to report the following cases which quite definitely indicate some problems both in diagnosis and in treatment:

Case II. LFR, female, aged 27 years, came under observation in November, 1927, giving a history of bloody stools with a rapid decline in health for the past six months. Careful interrogation revealed that she had not been well for three years. She first began to have attacks of diarrhea in 1925, and had on several occasions noted blood in the stools, but the more severe symptoms dated back only six months. In 1926 she spent some time under the care of Doctor

Bargen, who at that time made a diagnosis of ulcerative colitis and began the use of his vaccine, which she used according to instructions for several months. She was a school teacher and was greatly inconvenienced in her work because of diarrhea during the spring of 1927. At this time she was having from twelve to fifteen stools daily. The stools were not copious, sometimes apparently nothing but a little blood and mucus. In June (1927) she was taken to a hospital in Des Moines. On July 4, while in the hospital, she became acutely ill with symptoms resembling cerebral embolus. Following this, she was in a semiconscious state for ten days, and for some four or five months experienced a marked weakness in the left arm and leg.

On admission to our institution four months later, she was confined to her bed, weighed about one hundred pounds, and complained of great weakness, loss of appetite, and was having ten to fifteen stools daily. Examination of the stools revealed blood, pus and mucus. The sigmoid examination revealed a pale rectal mucosa studded with pin-point ulcers or abscesses, with an occasional large ulcer which bled readily. Bacteriological examination revealed the diplococcus was characteristics similar to those described by Bargen. The blood examination gave a red cell count of 3,270,000, white cells 9,000, with a hemoglobin (Dare) of 50. The treatment instituted and followed with slight deviation was as follows:

The use of Bargen's vaccine beginning with .2 c.c. each week and increasing up to 2 c.c. The patient received one cleansing alkaline enema daily at a temperature of 110° and a rectal injection of a one per cent mercurochrome solution was used daily for some time. With the healing of the ulcers and disappearance of the blood, this was discontinued. Later, due to a re-appearance of the blood, acriflavin has been used. Recently, we have used stovarsol in small doses—one grain daily—as on a previous occasion she had responded unfavorably to larger dosage. She apparently improved during the time this was being used, though it is not supposedly to particular value in this type of trouble.

During the entire time of treatment, the patient had complained of abdominal tenderness, but the exact location of this has not been definitely determined. She was given fomentations to the abdomen twice daily, and a cool rub following. Her diet has been liberal, bland in character, and as rich in vitamins as possible. She is still under observation; has gained forty pounds in weight and there has been a decided improvement in the anemia.

Some of the peculiarities of this case are a tendency to pass a stool in the morning that may be formed. Later in the day, an intense flatulency obtains and by evening she is apt to pass one or two decidedly liquid stools. She may exhibit a temperature of 99.6°-99.8° each evening, six months after beginning treatment. She still complains of a sense of abdominal soreness which we are unable to locate by physical examination. She is particularly conscious of this when standing. These persistent symptoms after such painstaking treatment warrant our being careful as to our prognosis. This case illustrates the chronicity of the disease, the typical anemia and the characteristic stools. Further, the injury to the nervous system has not been satisfactorily explained.

Case III. HHW, male, aged 21 years, came under observation in May, 1922, giving a history of typhoid fever in November, 1921, following which he had not been able to leave his bed. In the fifth week of fever he had hemorrhages from the bowels which persisted for five days. Following the hemorrhages, he passed blood and mucus and slimy stools, with pain and cramping in the left abdomen coming on about a half hour after meals. At the time he presented himself for treatment he was having watery stools, averaging six per day, tinged with blood and considerable mucus. There was nausea but no vomiting; weak and emaciated. *Entameba histolytica* were found in the stools.

Medication: Irrigations of quinine solution—ten grains of quinine sulphate to the quart of water—temperature reduced to ice cold. Also quinine hydrobromide, ergotine, tannalbin and bismuth carbonate by mouth.

Diet: Bland, non-irritating, eliminating all seeds and hulls.

At the end of the first week he had gained four pounds in weight. At the end of the second week he was taking 3000 calories per day, had gained eight pounds and no ameba were found in the stools. He remained under observation until October 12, 1922. He had gained 56½ pounds in weight and stated that he never felt better in his life. Stools were quite normal.

Came under observation again in April, 1924, at which time the ameba were again found. He was given emetin, and quinine enemas. Recovery was satisfactory—gained some 25 or 30 pounds and was feeling quite well.

Returned again in September, 1927. Had lost 43½ pounds in weight. Complained of severe diarrhea with blood and mucus in the stools. Examinations of the stools on this occasion had not

shown the presence of the entameba, but he was treated on the supposition that he might have the entameba because of previous experiences. He was given stovarsol and medicated enemas with only temporary benefit. A few weeks later he ceased to gain weight and there was more blood in the stools. He had a daily afternoon rise of temperature, often going as high as 102°.

Since he did not improve on medical treatment, it was decided that he should have surgery, and an ileostomy was done on March 7. He had not been under surgical observation for sufficient time to determine what the results will be. His temperature has been normal for the past week.

Case III. Mrs. R, aged 40 years, came to us stating that some five years ago her condition was diagnosed as ulcerative colitis and that she was under treatment in a sanitarium for six months, during which time the treatment was: Rectal dilatations with local medication, the character of which she had no information; emetin and other drugs; bismuth by enema. She was having as high as seventeen movements a day at that time. After six months, without relief of her symptoms, greatly reduced in weight and markedly anemic, she returned to her home, and on the advice of a neighbor resorted to the use of sulphur and molasses. Relief of the frequent evacuations was almost immediate; she gradually regained her weight and was well for one and one-half years.

At this time she stated that she ate some popcorn which caused a recurrence of her old trouble and on attempting to obtain relief, resorted again to the sulphur and molasses, but found that it did not have the desired effect. Someone suggested soda, which she took for a time, and again obtained relief. Following this, she was free from trouble for one year when there was a recurrence of her symptoms, from which at the present time she had not obtained complete relief.

For the past three or four months she had been passing mucus with a little blood. Several weeks ago she had a series of convulsions—fourteen in three days—the trouble beginning in the fingers of the left hand and extending up into the face and down the left side of the body. She stated that she was not unconscious. The convulsions lasted from five to eight minutes. The physician who saw her suggested that the trouble was probably due to a cerebral embolus. She was in bed two weeks—very nervous and hysterical.

Patient did not remain under observation. Was given an outline for home treatment. We are not sure that the convulsive moments may not have been of hysterical origin in this case.

This case also illustrates very definitely the chronicity of the disease and the tendency to remissions which are present in most of these cases. The peculiar household remedies probably had no effect on the disease but were used at the time of remissions and accordingly given the credit for relieving the trouble. This case also reports a neurological complication which has not been satisfactorily explained.

Case IV. H. A. S., male, aged 37 years. The patient came to my office to consult me relative to an intestinal disturbance which had annoyed him for the past two or three years. He stated that he would have from fifteen to twenty bowel movements per day, passing much mucus and blood. The proctoscopic examination in this case revealed many small pin-point ulcers with occasional ulcers of elliptical shape, approximately 3 to 8 m.m. in their long diameter, very suggestive of the amebic infection. Bacteriological examination of scrapings from the ulcers showed the *entameba histolytica* and was positive for Bagen's diplococcus.

This patient did not remain under our observation but was referred to Dr. Clement Martin of Chicago, who reported on January 3, 1928. "A five-day course of stovarsol was started December 10, and the result was satisfactory. A second course was given December 21 to 25. On proctoscopic examination December 15 many of the ulcers were seen to have healed and the others were healing. Today all the ulcers are healed. The clinical improvement has been good, the diarrhea controlled and the abdominal distress relieved. There was no unfavorable arsenic reaction."

This case illustrates the possibility of the patient suffering from both the *entameba histolytica* and also exhibiting the diplococcus of Bagen with the typical pin-point ulcers. Bagen calls attention to the fact that parasites were present in the stools in 11 per cent of their cases, the *entameba histolytica* being found in ten cases. This case would justify the use of a parasiticide in addition to the treatment for ulcerative colitis.

From a study of these cases, one is impressed with: First, the chronicity of the disease. A period of four years is not an unusually long time for the disease to persist. It may go on for ten or fifteen years and the patient finally succumb to some intercurrent trouble. Second, the

tendency to remissions. In practically all of the cases which we have reported, there have been remissions, and since this is not typical of the disease, we would be very cautious in concluding that the patient is cured. Such a statement is justified only after a period of three or four years of reasonably normal health. Third, the possibility of a specific type, such as the infection of the *entameba histolytica* finally developing into the non-specific type. The prognosis in these cases has not been particularly favorable.

Our time will not permit of a detailed review of all the measures that have been proposed for the treatment of this condition. Bagen's conclusions relative to treatment are as follows: "The treatment of chronic ulcerative colitis now in use which affords the best results is immunization against the causative organism, removal of foci of infection, plenty of nourishing food, mental hygiene, and such supportive measures as are indicated in individual instances." Hurst, in a discussion of this disease, advocates, on the grounds that the disease is really an aborant form of bacillary dysentery, large doses of a polyvalent antidysenteric serum intravenously. Whether either of these treatments may be regarded as specific only time will tell.

I am of the opinion that, in outlining a therapy for the cases which come to us, one of the most important factors is complete rest in bed. In our routine the patient is kept in bed until the rectal ulcers are healed, or at least until the blood disappears from the stools. We further believe that local applications are beneficial in producing prompt healing of the ulcers. Mercurochrome in 1 per cent solution, or acriflavin 1-5000, have been used in all our cases with apparent benefit. In severe forms of dysentery tannic acid in some form is prescribed either by enema or by mouth, for its astringent effects. In certain cases we have felt that irrigation of the bowels with an alkaline solution was quieting to the excessive peristalsis and

had a beneficial effect. Bargaen feels that such measures are of very limited value. Opiates we rarely use, although the dysentery may be so severe at times as to demand them.

Our cases have all been given a liberal but very bland diet. Milk has been an important part of the diet but cereal gruels and purees of vegetables are also allowed. When the diarrhea has subsided the use of orange and tomato juice is especially beneficial. We believe a diet rich in vitamins is essential. In a recent article, Larrimore calls attention to the necessity of such diet in the treatment of these cases, and is of the opinion that a certain vitamin deficiency over a long period of time may have been a factor in the patient's emaciated condition. Because of the pronounced secondary anemia every effort possible is made towards correcting this. We have not had to resort to transfusion, but in the event of severe anemia, we would recommend its use.

Careful consideration is given to possible foci of infection. Bargaen and his associates are of the opinion that the trouble originates usually from a focus in the upper respiratory tract—tonsils or teeth—and strongly recommend that careful search be made in every case for a focus of infection. He reports that in a series of 200 cases, tonsillectomy was performed in 109 and teeth were extracted in 120. We are also of the opinion that it is advantageous to use the vaccine as provided by Bargaen. We have not observed such striking results as he reports but have seen no ill effects from its use and are more than willing to persist in our efforts with it, hoping that the course of the disease may be shortened and the relapses avoided.

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DISCUSSION.

Dr. F. M. Johns (New Orleans): I was very much interested in Dr. Eggleston's paper, because, from a laboratory standpoint, we are so frequently called upon to diagnose these cases. We usually fight them for a few days, and send them back with the diagnosis "colitis." It is highly interesting to me to notice with what degree of rapidity the average case of ulcerated colitis will clear up after being properly diagnosed and proper treatment instituted, for within a few weeks we get a complete regeneration of the colonic mucosa. I really believe that most of these represent the effect upon rather than a disease situated within the mucosa itself.

I remember a famous case that was cured almost miraculously. This was in a doctor's wife. I think nearly all our gastrologists saw her, with the exception of our chairman. We followed her for a number of years, and found she was sensitive to milk. As soon as she stopped taking milk she got entirely well.

Most of the cases we find may be resolved into secondary lesions from such conditions as pernicious anemia, where we have a residue of undigested meat which putrifies and the split-protein products affect the mucosa. Another very frequent cause has been found to be diverticuli or benign polypi of the colon. Those cases where surgical intervention has been possible have rapidly cleared. I believe a study of the anatomical structure together with the food residuals is one of the most important conditions in the proper diagnosis of such conditions.

With regard to amebic infections, I think we are becoming more and more impressed with the necessity of all the modern methods of diagnosis. For instance, the search for cysts in between the stages in which you can get the acute vegetative forms is of the utmost importance. Some of the methods of concentration frequently will reveal them where a direct smear examination will fail.

Dr. Chaille Jamison (New Orleans): I was very deeply interested, naturally, in what Dr. Eggleston had to say. I want to emphasize, particularly, the remarks he made about the use of the proctoscope and its very great importance. It is a very simple instrument, one that should be in the hands of every interne. In my service, which is a general medical service of course, we have to deal with a great many dysenteries and diarrheas and we have made it a routine practice in such cases to use not only the proctoscope but also the sigmoidoscope.

We feel that in any of these cases, even with a history of diarrhea or dysentery, a routine examination should be made particularly for the existence of amoebae. When ulcerations are found, whether they are the frank ulcerations, or merely pin point ulcerations and small abscesses, one disease must always be considered, the one that I see frequently (because my service is a negro service), and that is syphilis. It is remarkable how some of these cases we feel we can almost make a diagnosis from the outer appearance alone, provided amoebae can be excluded; and it is remarkable how many cases will clear up with anti-syphilitic treatment. I think that has something to do with the nonsyphilitic specific cases clearing up under salvarsan. It was first brought out for the treatment of syphilis, and that is one disease that should never overlook even if the Wasserman is a negative.

The second disease that we also consider, particularly when we have a dysentery or diarrhea, without any particularly amount of blood or mucus, but with fairly voluminous stools with an amoebae and with great chronicity is sprue. Sprue usually presents the typical picture of pernicious anemia; not always, however. I think that sprue, gentlemen, is very much more common in our Louisiana than most of us are ready to believe. I am frank to admit that I cannot differentiate sprue with any certainty from pernicious anemia. In such cases, this type of voluminous diarrhea and anemia, I have found had what I consider brilliant results by the use of liver extracts. I am very much interested in what Dr. Egglestone had to say, and I thank him very much for his mention of salvarsan.

Dr. E. V. Trahan (Baton Rouge): I would like to ask one question of Dr. Eggleston, and it is a question of intestinal mycosis, whether he noted this, and associated it in anyway with these ulcers? The subject of sprue, mentioned by the doctor, brought to my mind this question. Of course, we do not know, as it has never been proven that sprue has anything to do with intestinal mycosis, but in the past the two have been associated, and we have a good many cases of these ulcers in which we found considerable intestinal mycosis, much more than normally found, and we were inclined to believe it had something to do with the trouble. I would like to know if Dr. Eggleston did any work along this line?

Dr. D. N. Silverman (New Orleans): Any further discussion? I regret to have to take up any time, but I am not altogether in accord with some of the statements that have been made. I do not think that amoebic dysentery is a surgical condition; that is not only my own opinion, but

that is the opinion of men who believe they have been able to treat the disease medically. Chronic bacillary dysentery is often a point of contention, and many men do not believe there is such a thing. However, there are authorities, such as Russell and Rogers, who believe that the ulcerated condition, started by the acute bacillary dysentery persists as a chronic condition and is truly a chronic bacillary dysentery, rather than going into a secondary infection and giving us a chronic ulcerated colitis, so called.

I asked Dr. Baldwin about this while in Rochester, and he said that there was no history in the cases he had reported in chronic ulcerated colitis, or any investigation to determine whether these patients had previously had bacillary dysentery or any of its manifestations. However, I rise to say that I do not believe there is such a thing as chronic bacillary dysentery, caused by the bacilli of Frankland and of Shield; and as reported by Simon Flexner, himself, some of these cases are benefitted not only in the acute stage, less often in the chronic stage by the use of the anti-dysentery serum, both the polyserum and sheep serum for the shiba type. If there is no further discussion, I will call upon Dr. Eggleston to close.

Dr. E. L. Eggleston (closing): I appreciate very much the discussion which my paper has provoked. Relative to the intestinal mycosis, we have done very little work along this line, so I am unable to answer the question of Dr. Trahan.

The skin tests for food allergy are very essential and should be made far more frequently than has been done in the past. As pointed out by Doctor Johns in his case, the sole trouble was apparently due to sensitization to milk on the part of the patient.

Relative to Dr. Silverman's remarks on surgery: I agree with him that surgery ought not to be used except in extreme cases; nevertheless, there are times when a cecostomy or ileostomy may be necessary in order to save a person's life.

The mortality in the non-specific type of ulcerative colitis is rather high. It has been reported as high as 25 per cent. We do not observe our patients for sufficient length of time to arrive at a satisfactory conclusion relative to the mortality in this group of cases. Our patients, as a rule, make definite improvements. The period of time necessary to accomplish this is indefinite; it may be as short as one month or it may be a period of six months. When the patient leaves us in apparently good health, we are not satisfied that a recurrence may not be possible. The use of the term "cured" in these cases must be with definite reservations. The tendency to recurrence in the

apparently cured patients warrants the belief that the illness may persist for years with periods of absolute freedom from symptoms. The theory of some investigators that the non-specific type of ulcerative colitis is due to a definite infection, is clinically borne out by these observations.

The necessity for studying these patients with great care before surgery is recommended reminds me of an incident related by Dr. Julius Bauer recently. He stated that in one of these Western citis a case was brought to his attention that had been operated sixteen different times without apparent improvement in the patient's condition. It is true that not all the operations were on the gastro-intestinal tract, but it was his opinion that if we had more good internists and fewer speicalists that the patient might have been spared many of these operations.

Draper, Cotton and associates, believe that in many of these cases a colectomy is advisable. We appreciate that the condition is a most troublesome one, but have not been convinced that surgery provides a great amount of relief. Their opinion, nevertheless, would warrant a very respectful consideration of the problem.

TRAINING HEALTH WORKERS.*

MARSHALL C. BALFOUR, M. D.,†

INDIANOLA, MISS.

For the past ten months the Indianola Training Station has provided practical field experience for prospective county health workers in the flooded area. The Mississippi flood of 1927, besides economically crippling a population of three-quarters of a million by the loss of buildings, livestock and crops, was looked upon as the forerunner of conditions which menaced the health of the affected population. The Red Cross, the United States Public Health Service, State Health Departments and local physicians rendered valiant service in handling the immediate situation of medical and sanitary relief. The account

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of their efforts in immunizing the refugees against typhoid fever and smallpox, in protecting water supplies and ameliorating insanitary methods of excreta disposal has been ably recounted by others. Dr. F. J. Underwood, your state health officer, and Dr. William DeKleine, of the Red Cross, have shown in recent reports that the incidence of typhoid fever and smallpox in the flooded area was less in 1927 than in previous years. No one will ever know what might have happened if precautionary measures had not been taken. We insure against the loss of life and property and if no great damage is experienced we do not question the wisdom of having paid the premium.

The farsighted leaders of our Federal, State, and voluntary health agencies saw the need for permanent health organizations to continue safeguarding the health of the residents of the overflowed area. It was expected that the menace of malaria, pellagra, typhoid and other intestinal diseases, as well as the many problems of maternal, infant and child hygiene would be accentuated for some time by the economic stress following the overflow. Further, it may be admitted that the attention focused on public health by the flood was capitalized for the worthy purpose of extending health service to rural communities. The county health department has proven to be the logical unit for rendering health service to our rural population. For many years urban centers have been the only ones to profit by the application of methods of preventive medicine to the public at large. The first county health departments in the United States were established as recently as 1914. Since approximately 50 percent of the population of the United States is rural—that is, living in communities of less than 2500 inhabitants—it is readily apparent that more than half of our population has had no local full-time health departments until late years. In 1923 there were 214 full-time county health departments in 26 states

of the Union. Up to the period of the recent flood there were about 350 full-time health units organized on a county basis.

That the flood had a compensating constructive feature as well as a destructive side is attested by the fact that 86 counties in the seven flooded states of Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee have established full-time health departments since the overflow. There were 100 counties inundated, and of these, 86 have adopted budgets for county health departments, assuring local full-time health service to almost all of the overflowed counties. This increment of 86 county units to the existing 350 county units has materially increased the percentage of our rural population receiving full-time health service. It can be safely stated, in fact, that the flooded area is now more adequately served by full-time health service than the rest of the rural United States.

The distribution of these health units organized in the flooded states since the overflow is as follows:

States	No. of Counties Affected by Flood	County Health Budgets Adopted
Arkansas	24	20
Illinois	3	1
Kentucky	24	24
Louisiana	31	24
Mississippi	9	9
Missouri	6	5
Tennessee	3	3
	<hr/> 100	<hr/> 86

The raising of funds for these units was a big undertaking which has been successfully accomplished. The first flood area units were organized in July, 1927, while others have been subsequently established. For the 18 months or fractional part of that period, that is, to December 31, 1928, for which the budgets has been assured, the total expenditure of the various contributing agencies to these 86 county health departments will total one and a quarter million dollars. That is a business-like amount which impresses one with the

need for safeguarding the investment by all possible means. To that sum the counties are contributing approximately 20 per cent, the respective state health departments of the 7 states are contributing 20 per cent, the Federal Public Health Service will contribute 36 per cent, while the Rockefeller Foundation adds 24 per cent. Because most of these counties were called upon to make an appropriation for health work at a time when they were economically hard pressed, it has been necessary for the outside agencies to contribute a larger percentage than is customary in the usual co-operative budget of a county health department.

The personnel of a standard county health department includes a health officer, one or more public health nurses, one or more sanitary inspectors, and a clerk or secretary. Of all the factors leading to the success or failure of these new units, the selection and training of the necessary personnel has been recognized as the most difficult task. The work to be accomplished during the first year or 18 months rests largely on the shoulders of the four staff members of the unit. The reception which their work is accorded by the public and the co-operation which they receive in improving health conditions reflect in a large measure their own qualifications and accomplishments. The stability of the unit, its chance for permanence and the further appropriation of funds depend again, in no small degree, on the personnel of the unit. Providing qualified health officers, public health nurses, and sanitary inspectors for these rapidly created health units was another emergency which had to be met. Because of previous experience in this field, the International Health Division of the Rockefeller Foundation undertook the task of assisting in the training of these health workers. In July, 1927, the Field Training Station for Flood Area Personnel was established at Indianola, Sunflower county, Mississippi. An essential feature of the training station is that it is conducted in

conjunction with a standard county health department which carries on a normal, well balanced health program in a rural area. The training is primarily field experience, and the physicians, nurses and inspectors in training take part in the regular activities of their respective branches under the supervision of the county staff. The director of the training station is the county health officer, the nurse in charge of training is the county nurse, while the inspector supervising the training of inspectors is the county sanitary inspector. In addition, the station has a nurse who devotes most of her time to prenatal and infant home visiting and a third nurse who limits her activities to tuberculosis work. Recently we have obtained the services of a competent health officer to serve as assistant county health officer in order that the director of the station may devote more of his time to the administrative duties connected with the training activities. The general plan of training is patterned on that of the first field training station established by the Foundation at Andalusia, Alabama, under the direction of Dr. W. G. Smillie, and later in charge of Dr. Chas. N. Leach, who was also responsible for the organization of the Indianola Station. The Alabama Station trained only health officers. It is believed that the training at Indianola is the first endeavor to provide field experience to prospective county health nurses and sanitary inspectors.

In the 10 months up to May 1st, 1928, 234 prospective health workers have registered at the Indianola Station. This number includes 58 doctors, 84 nurses, and 92 inspectors, distributed by states as follows:

	Physicians	Nurses	Inspectors	Total
Arkansas	20	23	18	61
Kentucky	10	29	16	55
Louisiana	14	9	24	47
Mississippi	5	21	25	51
Missouri	0	0	7	7
Others	9	2	2	13
	58	84	92	234

The selection of the personnel to be trained has rested entirely with the state health officers and the directors of county health work in the respective states. It is interesting to review some of the qualifications of those coming to the station. A summary of some pertinent data is presented for each group of trainees:

Physicians:	
Total number trained	58
No. over 40 years of age.....	29
No. under 40 years of age.....	29
Premedical education:	
High school only	20
1-2 years premedical college.....	27
4 years premedical and collegiate degree..	11
Previous training or experience in public health:	
Little	19
Considerable	5
Estimated as good prospects.....	23
Estimated as fair prospects.....	25
Estimated as poor prospects or failures.....	10

	Nurses	Inspectors
Total number trained.....	84	92
Education:		
Less than high school graduates....	31	18
High school graduates	36	25
1-2 years college, normal school, or business training	14	36
College graduates	3	13
Previous training or experience in public health:		
Little	18	11
Considerable	10	7
Estimated as good prospects.....	36	33
Estimated as fair prospects.....	33	39
Estimated as poor prospects or failures	15	20

The periods of training have varied from a minimum of 10 days to a maximum of 40 days. The average has been from four to five weeks. At the completion of the training period a report is made to the state health officer of the state to which the trainee returns to guide him in his decisions regarding the employment and assignment of the prospective health worker. Some comments may be offered on the above tables. Exactly half of the physicians trained have been over 40 years of age.

This group represents an era in which the teaching of preventive medicine in medical schools and the application of preventive measures in general medical practice have been, in the majority of cases, entirely foreign to their experience. After observing the mental and physical reactions of this large group it may be said that, as a rule, to which there are notable exceptions, a physician over 40 years of age entering public health work for the first time is a poor prospect. Passing judgment most leniently, only 40 per cent of the whole group were estimated as good prospects for county health officers. Eighteen of the group of 58 were the only ones having any experience or training whatever in public health work. It should be an aphorism that a medical degree, *per se*, is not a passport to a position in the field of public health. The recent medical graduate, at least in the better medical schools, so well exemplified at Vanderbilt where your former state health officer, Dr. W. S. Leathers, is so admirably inculcating the ideas of preventive medicine into the medical school curriculum, has some concept of public health and the prevention as well as the cure of disease. After observing the men going into health work in the flooded states, however, one may remark that the medical graduates of recent years have not yet, to any great extent, filtered into the field of public health. Progress is being made, but the large number of middle-aged practitioners of medicine being made into health officers is disappointing.

Among the group of nurses and sanitary inspectors trained at Indianola, it is notable that the inspectors as a group have had better preliminary education than the nurses. The large number of graduate nurses in the states bordering the Mississippi who did not complete high school previous to their nurse's training is regrettable and should stimulate the nurses' training school to attain higher standards for their entrance requirements. A public health nurse with insufficient educational

background is under even a greater handicap than a private duty nurse. Her need of initiative, ability to handle responsibilities, and her public contacts require a greater capacity to think, for which basic education is fundamental. An encouraging feature in the development of rural sanitation is that a desirable type of young man is being attracted to the position of sanitary inspector. Thirty-nine (39) of the group of 92 have had some college training and 13 of them hold collegiate degrees. If any justification of the training station is needed it may be seen in the number of physicians, nurses and inspectors who, after a training period of four or five weeks, were appraised as poor prospects.

The training station provides no fixed curriculum or duties for the trainees. After a few days' observation, the trainees assist in the routine functions of the health department under the supervision of a staff member. After two or three weeks at the station, they are given some responsibilities or some individual problem upon which to work. To give an idea of the scope of the experience offered at Indianola, the following table lists the activities of the Sunflower County Health Department for the past 10 months:

MEDICAL AND NURSING DIVISION:

Cases of communicable diseases investigated	166
Home visits (tuberculosis, prenatal, infant, preschool, school, midwives, and others).....	1783
Midwife club meetings.....	62
Number attending	708
Prenatal clinics	8
Number expectant mothers examined.....	195
Preschool conferences	17
Number preschool children examined.....	445
School visits	311
Medical examinations of school children.....	5317
School children found defective.....	3544
Nutrition classes	3
Children reweighed in nutrition classes.....	1791
Home Nursing & Hygiene Classes for girls....	7
Number attending	187
Health talks	285
Schick tests	406
Diphtheria toxin-antitoxin (doses).....	4955
Typhoid immunizations (doses).....	7766
Smallpox vaccinations	5562

Laboratory examinations:

County	503
State	2067
Births reported	855
Deaths reported	482

DIVISION OF SANITATION:

Sanitary inspections	4672
Privies constructed and approved.....	1066
Septic tanks constructed and approved.....	27
Sanitary surveys and maps drawn.....	26
Restaurant inspections	174
Dairy inspections	39
Examinations of water supplies.....	23
Sewer connections obtained	17

Each day begins with a 15 to 20 minute office conference for members of the staff, at which all the trainees are present. The staff members and trainees report on the activities of the previous day and assignments for the day are made. In this way each physician, nurse, and inspector has the opportunity to see the department functioning as an integral unit; the inspector in training gets an inkling, at least, of what a public health nurse does. Since the control of communicable diseases is the cornerstone of public health work, the prospective health officers are taught the health officers' relation to infectious diseases. The county health officer visits each case of diphtheria, scarlet fever, typhoid fever, and smallpox reported, and the physicians in training accompany him, observing the investigative, quarantine, and instructional features of the case. It is hoped that the prospective health officer has his instincts awakened to the point of thinking in terms of (1) is it, or is it not the disease in question, (2) what is the source of the infection, if possible to determine, (3) are the rules for the isolation of the patient and the quarantine of contacts understood by those concerned, and (4) does the family know the public health precautions to be taken? Doctors in training may be sent alone on subsequent visits or to obtain cultures. The nurses visit communicable disease cases as occasion permits and as the need for the service demands.

From one to two weeks are spent by the student nurses with the regular staff nurses in making home visits to cases of tuberculosis, to expectant mothers, and to infants, preschool and school children whose families are to be investigated and advised. Usually two nurses accompany the staff nurse while only one trainee at a time makes the visit with the county nurse. The technique of a public health nursing visit is demonstrated by the routine activities of our nurses. Our record on all these cases are accessible to the trainees and spot maps of communicable diseases, tuberculosis, and prenatal activities are before them daily. Because 60 per cent of the births in Sunflower county are delivered by midwives, the instruction and supervision of county midwives is another function of our nursing service. District club meetings of midwives are held each Saturday, to which the nurses are assigned for observation, and toward the end of their training they are given the responsibility of conducting a meeting and of giving a talk. On every third week a prenatal clinic is held at the health department and 130 cases are now on our prenatal register. At each clinic between 20 and 30 cases are seen. On new cases a routine history, Wassermann, blood pressure determination, urinalysis, physical examination, and pelvic measurements are made. Old cases are examined for blood pressure readings, urinalysis, general condition and special symptoms. The doctors and nurses in training take part in at least one clinic; the doctors conduct the examinations, while the nurses take histories, obtain specimens, and assist the doctors. These prenatal cases are followed by nursing home visits as prenatal cases, and later as post partum and infant cases.

Our pre school work is emphasized more during the summer months, and the doctors and nurses present during that period take part in the organization and conduct of these conferences. School examinations form a large part of the winter program,

and the doctors and nurses in training are kept busy under the guidance of staff members. Nurses take histories, weigh and measure the children and keep records while the doctors make the inspections or examinations. The keeping of the school record file and the reporting of defects to parents and teachers are stressed in the nurse's training, and each nurse is given some responsibility in record keeping. In our immunization work against diphtheria, typhoid, and smallpox, which has its waves of popularity depending on season and on incidence of the respective diseases, the trainees are again mustered into service and the majority of them grasp the significance of dealing with preventable diseases from a community standpoint. It is true that the assistance rendered by the trainees contributes to the volume of health work accomplished in Sunflower County. As yet little has been said about the administrative details of managing a group of trainees, which compares with driving a sixteen-horse team and frequently threatens the staff members with nightmares.

Since the overflowed area, for which prospective health workers are trained at Indianola, is a region where intestinal or filth borne diseases still take a heavy toll, the sanitary inspectors spend at least 60 per cent of their time during training in the observation and practice of rural sanitation. Each trainee usually assists in the construction and installation of a septic tank, and the inspector who can't build and install, unaided, at least two type of sanitary pit privies doesn't "graduate." The inspectors are also taught the method of taking water and milk samples; they observe the inspection and grading of restaurants and dairies. Since the passage of the standard milk ordinance in Indianola we have two grade A dairies for demonstration purposes. One of these dairies was planned and its construction supervised by our sanitary inspector; parts of it were constructed by the inspectors in

training at that time. To further supplement this field experience in dairy work, Pine Bluff, Arkansas, has recently been utilized for more extensive dairy experience.

During their period at Indianola most of the inspectors have taken part in mapping and making a sanitary survey of some town or plantation. The doctors have also assisted in these sanitary surveys. Toward the end of the training period most of the future county health officers have been assigned either singly or in pairs to some particular problem to study and on which to make a written report. A number of them have made a health survey of some town in the county. These reports usually total six or eight typewritten pages and deal briefly but in a unified manner with the water supply, sewage disposal, milk, housing, school, and communicable disease conditions in the particular town. Others have made house to house surveys of one or more plantations with respect to the past history of typhoid fever, and the type and condition of privies in use. Spot maps were prepared and stool and urine examinations for the detection of typhoid carriers were included in the reports by the student health officers. These reports have been used as the basis of sanitation programs inaugurated on some of these plantations. Others have made special pellagra or malaria surveys in particular areas.

Most of the doctors and inspectors, at least those destined for service in areas where malaria is endemic, have spent some of their training period in the adjoining county of Humphreys. Under the tutelage of Dr. P. S. Carley, county health officer, 40 doctors and 68 inspectors have averaged three or four days each during the past ten months getting an introduction to the subject of malaria. The doctors and inspectors have made field sketch maps, have caught and differentiated the species of adult mosquitoes, have dipped and differentiated the species of larvae, and the doctors have assisted in making history, blood and

spleen surveys to determine the local incidence of malaria.

Although no didactic program is scheduled and the training station is primarily field experience, occasional evening lectures or conferences are held for the benefit of the trainees. In the ten months 70 lectures, or seven lectures per month, have been held. The subjects of Pellagra, Malaria, Venereal Diseases, Public Health Administration, Communicable Diseases, Dairies, Reports and Record Keeping, Rural Sanitation, Maternity and Infant Welfare, Tuberculosis, Typhoid Fever, Trachoma, Home Visiting, Immunization Work, Mouth Hygiene, Water Supplies and Sewage Disposal are among the subjects which have been discussed by the staff and the health officials who have visited the station.

Incidental details in connection with the administration of the training station may only be mentioned. Each worker in training keeps a dairy, making brief notes as to each day's work in order that a review of his experience may be had at any time by the staff and his assignments varied according to his particular need. A small library containing a few reference books on public health, a moderate supply of medical, public health and nursing periodicals, and a collection of reprints are available for the use of the trainees. Seven touring cars, in addition to the cars of the staff, are at the disposal of the trainees for official use in their field work.

The Sunflower County Health Department has operated on an annual budget of \$12,500. The salaries and travel of four staff members are paid from this sum; all health activities such as immunization work and the purchase of supplies and equipment for the county are financed by this budget or from local sources. For the training station a separate budget is provided by the Rockefeller Foundation, from which the largest part of the disbursements have been for stipends or living

allowances to the prospective health workers while in training and for their travel expense. The doctors accepted for training receive \$5 per day and the nurses and inspectors \$3 per day; actual travel expense from the trainee's home to Indianola and return to the point of assignment is also paid. The expenditures by the training station in its ten months of existence total \$46,924, which includes all stipends and travel, purchase and maintenance of automobiles, that part of salaries occasioned by training station activities and incidental expenses. Dividing this sum by the 234 health workers who have been at the station shows an average cost of \$200 per trainee. If the average county budget is taken at \$10,000 per year, and if five or six county departments will be saved from failure by misplaced personnel, the expenditures of the training station will have been well invested. It is hoped that the benefits to all the counties in providing some preliminary training for its health workers will more than repay for the money invested in their training.

In conclusion, I may quote Dr. W. G. Smillie, who reported two years ago on the experience at Andalusia, Alabama, in the field training for health officers, and whose observations apply equally well to the training of all health workers at Indianola:

"It is obvious that one to two months of field training cannot prepare the prospective county health officer for all the contingencies that will arise when he assumes his new duties and responsibilities in an independent post, nor does this period of training give him even a ground work in the fundamentals of preventive medicine. The chief value of the field training is that it stimulates an enthusiasm for public health work and develops a public health sense. Furthermore, it enables the trainee to learn the routine and to balance his program. It also gives him an inkling as to the varied activities of a county health officer and the relative values of the various activities."

At present these training stations are filling the gap until the time when our schools of medicine, public health, and public health nursing will provide a sufficient quota from which to draw the majority of our county health workers. Even then there will be a need for some form of practical field training in rural public health methods.

DISCUSSION.

Dr. Felix J. Underwood (Jackson): We will soon be in a position to balance things in Mississippi. We have been considerably out of balance. Most of the effort and most of the money up until this time has been spent in caring for wrecks, with little time to prevent the wrecks. Insane hospitals, tuberculosis hospitals, charity hospitals everywhere wait until the wreck has happened and then get very busy to do something for the individual. I have several appeals in my pocket right here along that line. We recently had a woman at the Sanatorium for examination. Her case is one of advanced chronic pulmonary tuberculosis. We do not get the incipient cases, the early cases on account of the fact that so little individual work has been done in the unit back home. The sanatorium is filled with advanced cases.

In regard to the insane, we know cerebro-spinal syphilis, and other diseases that are preventable, will cause insanity, yet they will wait until he is insane before trying to do something for him. They will wait until somebody has a hemorrhage or other advanced symptom of tuberculosis, and then hurry to do something for him. Now with the trained and adequate personnel all over the state we shall begin in a few years to decrease the number of wrecks that we are called upon to care for.

I should state that Dr. Balfour is not only director of the training station, but is the county health officer of Sunflower County. You notice that the doctor doesn't look to be overly stout, that is from the standpoint of *avoir du poids*. I think we have gotten fifteen pounds off him since he came to Mississippi. He is acting in a dual position, it is a hard one; he has given his best and done splendid work.

The miracle days of biblical times are no more. Until recently we seemed to think that any practicing physician, private duty nurse, retired policeman, political lame duck—plain ordinary laymen—could go to bed at night as such and the following morning without training or previous experience take up the role of health officer, public health nurse, or sanitary inspector and get away with it. (I did not say succeed.)

Malpractice of this sort is rapidly disappearing. As much as we dislike to admit it, this was unavoidable for the reason that until very recent years there was no place to go to obtain practical public health training and experience, except as an apprentice to some self-made health officer.

A general practitioner does not become a specialist of any kind over night and he cannot become a specialist in public health, work without special study and preparation over a period of months and years. It should be a source of great satisfaction to those of us who have the matter so much at heart to see the public showing a degree of appreciation of this fact as evidenced by the demand for trained workers, adequate community health programs and less politics.

Abundant provision has been made for the preliminary stages of training and experience in medical schools and long internships in hospitals so far as curative medicine is concerned. Thus far the medical schools of the country have made very little provision for "internships" in the practice of preventative medicine. Several would doubtless argue that the public health requirements are being taken care of but on careful investigation we find only two or three that are really honestly giving the students anything approaching a real program in preventive medicine and public health.

The gradual development of a public health conscience and enlightened public opinion and demand will bring about a proper balancing of the teaching of preventive and curative medicine.

No matter how much didactic instruction a medical student may be given, unless he also is given the opportunity to gain practical experience before assuming the full responsibilities of his office as a health worker, he will fail or will not attain the success possible with adequate practical training in the field.

For five or six years the International Health Division of the Rockefeller Foundation has maintained in co-operation with the Alabama State Department of Health a training station or center in Covington County, Alabama, which made it possible for the Alabama State Board of Health to forge rapidly ahead of most of the other states in full-time health departments. The Alabama State Board of Health now has more than 50 per cent of the entire population enjoying the blessings of intensive full-time county health work with plans well laid for the remaining counties very soon. This would be impossible without an adequate supply of trained personnel made possible by having this splendid training center organized and conducted for several years by the Rockefeller Foundation, and now, as I understand,

taken over and operated by the Alabama State Board of Health.

According to the report of Doctor Charles N. Leach, former director of the station, 283 physicians, 80 nurses, and 75 inspectors were enrolled in the Alabama station. Doctor Leach stated that 13.6 per cent of the physicians reporting for training failed to receive the approval of the director. The value of such a system of appraisal and intensive field training soon became apparent to me as a State Health Officer and I have requested training for a number of our newly appointed health officers. We also have employed several physicians, nurses, and sanitary inspectors from other states at the close of their training period. For the past three years no county director has been selected and for the past year no nurse or inspector, and from this time on no personnel will be selected, without having had a course of practical training for the particular work the person is to do.

More recently, the Rockefeller Foundation has cooperated with the State Health Departments of Ohio and Mississippi in establishing similar stations. The Ohio station was opened on February 1, 1927, at Greenville, Ohio. Approximately 40 physicians and 10 nurses have received training there.

Following the unprecedented and devastating flood of the great Mississippi Valley during May, June and July, 1927, with 90 counties in the several affected states to be organized on a full-time basis, the Rockefeller Foundation organized in cooperation with the Mississippi State Board of Health a training school at Indianola, Sunflower County, Mississippi, on July 8. Approximately 200 physicians, nurses and sanitary inspectors have enrolled. The training period is six weeks. Men and women from all sections of the United States and several from Canada have been given this emergency course, very intensive in character. The Mississippi station is built around a county health unit of the size and financial support which the average health officer will have at his disposal. Experience gained there is under conditions which will closely approximate those under which his future work will be carried out.

The first real prenatal clinic in the State was organized in this county last year. A splendid program has been carried out to the great benefit of the mothers and infants. The value of this phase of the well-rounded public health program carried out by the training center and county health department to the physicians and nurses in training is almost incalculable. The first county-wide tuberculosis and venereal disease survey will be under way soon. Pre-school conferences are frequently conducted and a splendid school pro-

gram has been carried out. Already all of the towns and schools and a large number of the rural homes of the county have been made sanitary.

The Mississippi State Board of Health is no longer embarrassed and held back by lack of trained personnel for new counties for now there is an abundance of good material from which to choose health workers and success is assured where formerly only partial success or failure was the rule. The State Board of Health will eventually take over the training of its own personnel as Alabama has done.

Dr. D. J. Williams (Gulfport): I have enjoyed the paper and discussion immensely; they have left but very little for me to say. They presented an array of facts however that demand the attention of this association. Dr. Balfour has developed the fact that 50 per cent of the doctors who are attempting to qualify as County Health Officers or Directors of these units are unfit; 50 per cent of the class is only fair or better, practically the same number are given their passports to enter this work. The doctor did not mention one qualification that I think he should have mentioned. I believe that any director of a public health unit should have a rich experience as a general practitioner in a general way. I do not believe that schools can make health officers, yet there is evidently a demand for just such work as the doctor is attempting to do at Indianola. Our medical colleges have been failures in qualifying men for this work. Our public health schools have been failures, and I can point to numbers of men that they have absolutely disqualified. As to the results that we are getting from the school here, I do not know. We have some tendencies that we might well watch that exist throughout the entire educational system I know in Mississippi, and here I want to sound a warning. There are too many failures in the grammar schools of Mississippi. It is costing us millions of dollars. There are too many failures in the high schools of Mississippi, and here in the learned profession when we begin to grade the output of the doctors as qualified for public health officers, we are finding that 50 per cent of them are failures. The same thing will apply to the inspectors, and it applies to the nurses. Now something is wrong, and it is a part of the duty of this profession to help find where that wrong is. Have we the correct method of training? A man may be a perfect failure in one locality, and a remarkable success in some other, and I know personally where some of these conditions have proven to be a fact. We must learn to individualize. Otherwise you are going to continue to have a great number of failures when they get into their respective places. We must remember also that from a

bodily number of these failures, ultimately there comes success. Some of the generals in our armies, the generals and leaders in our business world, have been failures, but when they have been able to adjust themselves why they have succeeded. Just remember in all of this, that the one that may have been cast aside, may prove to be the keystone of the arch.

Dr. M. C. Balfour (closing): I have nothing further to add other than to express my appreciation for this opportunity of presenting the subject of training in Public Health to you, and in closing would congratulate Mississippi on the progress which has been made in the field of rural health work. It has been interesting to me to note in the South, how at the present time the northern health authorities are coming to the South to learn something about county health work, and rural health work. There have been great many visitors to the health station from the state health offices of Massachusetts, and by the dean of Harvard Medical School, as well as some foreigners who have come to see the lead which the South now has in the field of rural sanitation.

SOME ESSENTIALS IN A DENTAL HEALTH PROGRAM.*

W. R. WRIGHT, D. D. S.,

MERIDIAN, MISS.

It is a privilege and genuine pleasure to appear before you as a representative of the dental profession, and I feel sure that, as co-laborers in an effort to give comfort, happiness and health to the people of our state, I express the sentiment of my profession when I say that it is a distinct honor to take part on your program. I bring greetings from five hundred dentists who honor and respect your noble profession for its long and unbroken history of sacrifice and service to suffering humanity. Dentistry has watched with pride and admiration your wonderful progress in both medicine and surgery. This has encouraged us and helped our profession to grow. We naturally look to you for leadership in both curative and preventive measures. Dentistry being a branch of the

healing science can do little without your co-operation.

It has been said that public health is the foundation upon which rests the happiness of the people and the welfare of the state. With this idea in mind, organized dentistry has become intensely interested in contributing its share to the public health program. Since such men as Mayo, Hunter, Osler, Bloodgood and other medical authorities have expressed their opinions in no uncertain terms regarding dental health as being absolutely essential to any general health program, and since these opinions have been supported by clinical experience, and the same views are held by dental authorities, I assume that any space given to this phase of the subject before a group of medical men would be useless.

In presenting the essentials for carrying on a dental health program I shall first call your attention to what I consider of first importance: the attitude of the dental profession to the dental health program. It has not been long since there was a different attitude toward dental health publicity work on the part of the dental profession. Dentists were not in accord on the subject. Some felt that the public did not need dental health work and that there was an ethical phase to the publicity necessary to carry on a dental health program. There were many far-seeing men in the profession, however, who realized that the physical betterment of mankind depended in a large degree on mouth conditions and that the dental profession would have to play a large part in managing any great mouth hygiene campaign. Gradually the dental profession became united in the conviction that mouth hygiene must be presented to the people.

The second essential in presenting a mouth hygiene program is the co-operation of the medical profession. This means more than we can estimate. There are sections of the state where dentists are few, particularly in rural districts. There the

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

family physicians can be of wonderful assistance in properly educating parents and their children in the proper care of the teeth. Parents should be advised to have the teeth regularly inspected to find the first stages of trouble and the proper corrections made and diet prescribed. In the pre-natal life the medical men hold the key to the situation.

The expectant mother is often told by friends and neighbors that she must have no kind of dental work done during pregnancy. Therefore, she avoids the dentist and is denied his advice as to the care of her teeth during that important period. In this way the pre-natal child is removed from the sphere of dental service and advice and the responsibility thrust upon the physician. We are only beginning to realize how necessary to the future health of the child is the diet and care of the mother during pregnancy. In many cases of pregnancy only a midwife is called and this presents another difficulty. This leads to the belief that that profession should be well prepared to take charge of this phase of dental health. Thorough co-operation of physicians and midwives with the program of the Mississippi State Board of Health will help us advance a long way toward the ideal.

With the dental profession awake to the importance of mouth hygiene publicity and the co-operation of the medical profession the next essential in the general health program is a public educated to the need of preventive dentistry. Realizing that the place to start in this educational campaign was not with the present generation, the child mind offered the best approach to the presentation of a general mouth hygiene program along with the general health program. Reviewing the success of these campaigns as conducted in our state it is hard for us to realize the many difficulties that confronted the pioneers in that movement. Today we have a public that recognizes the importance of the work and is willing to co-operate with the program

of the State Board of Health. Evidence of this fact is shown by the law providing for a dentist on the State Board of Health.

Having the child take the proper attitude toward the care of his teeth is an important essential in carrying on a dental health program. Where dental health programs have been conducted a great deal has been accomplished toward having the co-operation of the child in the attitude taken to the work. The deportment of the child in the dental office has been greatly improved. The dentist is no longer a terror to him. Where dental health programs are conducted in the schools the dentist is the friend who helps the child secure his one hundred per cent certificate to help his school become a one hundred per cent school. A holiday is looked forward to when the school finally arrives at one hundred per cent and the child feels that he has helped the school attain this distinction. Later on the child realizes that there is another side to what he is doing, that his health and happiness depend on doing his whole duty in the care of his teeth.

So we have laid the foundation for the advancement of a mouth hygiene program which we have the co-operation of the dental profession, the support of the medical profession, the public awake to its needs, and the child willing and anxious to take its part. I am glad to say that Mississippi has arrived at this goal.

When the Mississippi Department of Health decided to enter the field of mouth hygiene a careful study was made of the plans used in the several states when engaged in this work. It was soon realized that it would be difficult to adapt to our state any of the programs then in successful progress elsewhere on account of our large rural population, and our small percent of foreigners, and the limited finances available to support our program. We reviewed our situation and it was thought best to employ one full-time health worker and institute an educational program. It was gratifying that the public school

stem entered so heartily into the work. It was not long before the general improvement in the health, scholarship and deportment of the pupils was marked. The story of the progress of the work is no doubt known to many of you. I wish I had time to go fully into this at this time but I have not. You know that under the direction of Dr. Felix J. Underwood, Executive Officer of the Mississippi State Board of Health, Miss Gladys Eyrich, Director of the Department of Mouth Hygiene, assisted by an advisory committee representing the Mississippi Dental Association, that perfect harmony has prevailed. We are confident that the plan now in use is well suited to our needs. In fact, we are often called upon by other states to assist in the preparation of such programs and our success has been noted widely. We have recognized in Mississippi that mouth hygiene is a part of the general health program and that as such it should be carried along with it and not independently.

So much for what we have done in the past. Our aim in the future is even more ambitious. The work we have done has been elementary in a way but the elementary is always necessary to further advancement. There are certain improvements and developments in the work ascried on that are constantly confronting us. One of these is the change in the form of the dental certificate that has been issued for the examining and corrective work done by the dentists. There has been no understanding about a uniform certificate. However, the State Council on Mouth Hygiene will recommend that in the future the dental certificate must not be issued until cavities both pit and fissure in both temporary and permanent teeth are filled, teeth cleaned, and all abscessed teeth and roots (temporary and permanent) be removed and all unfillable teeth sterilized with a nitrate of silver. With this uniform certificate we can make greater strides and be able to give a more accurate check on our work.

Another advancement that we need to make is in the number of examinations of school children. We know that a one hundred per cent mouth in September may not be one hundred percent in January. Therefore, much damage may result from delayed attention to defects. We need to have a mid-term examination of the school children's teeth each session.

In order to carry on the mouth hygiene program already started by the State Board of Health and in co-operation with dental and other agencies, we are going to have to depend more on the hygienist. The hygienist is a product of dentistry. She is to dentistry what the trained nurse is to medicine. She educates through her acquired skill and knowledge of mouth hygiene. She is considered by the dental profession its most available aide in putting over its preventive programs. The school authorities of McComb, Laurel, Meridian and Vicksburg have been aided greatly in their work by the hygienists they have employed and their salaries are paid by those cities in connection with the State Board of Health. We believe that there should be a hygienist on the faculty of every city school system of five thousand people, that a hygienist should be placed in each eleemosynary institution and be a part of each country health unit.

The well-rounded dental health program must not be satisfied with the pupils in the public and parochial schools. We have used them as a beginning. There are others who need dental health work and we are responsible for them as well. Adults in our state institutions could be greatly relieved by this work. It has been shown that marked improvement has resulted from the correction of dental defects of the parents in the Mississippi Hospital for the Insane. Especially should our program include the tubercular patients.

Looking to the future for a developed program including pre-natal life and the pre-school child and a continuation of what

we have already developed Mississippi can boast of a thorough program of mouth hygiene work. The pre-natal life aspect of our program will be largely educational, as has been pointed out above. This we have barely touched as individual professional men and not attempted to a great extent in our state program. However, the field is ready for the work with the pre-school child. There are many agencies such as the Parents-Teacher organization that are interested in this phase of dental health work, and along with the general physical examinations have been put on in several communities of Mississippi. The pre-school child problem will solve and reduce the work with the school child when we have finally worked out a definite plan of approach.

In reviewing the work done in Mississippi we have already advanced wonderfully and should feel encouraged as to the future outlook. There is no doubt but that the budget for the maintenance of our public school system will be so greatly reduced when we have finally perfected our dental health program in Mississippi that the money now expended on habitual failures in pupils to make the grades and the expense of lagging children will pay for the support of the entire health department of our state.

The dental health program of the Mississippi State Board of Health is an important factor in the economic development of the state. When we shall have it functioning to its utmost the result will be more capable men and women, with less or crime and a happier citizenship. From the humanitarian side we will have less suffering, greater longevity and a higher moral tone among our citizens. Is not the risk worth while?

DISCUSSION.

Dr. F. M. Smith (Vicksburg): I enjoyed Dr. Wright's paper very much. He covered the health program from a business standpoint, from a public health standpoint, not only for the present, but he covered the work that has been done in the

past and has given a vision of what we may expect or hope to accomplish in the future.

He states three or four essentials that he deemed necessary in this program. One was the attitude of the dental profession; second, the attitude of the medical profession; and third, the co-operation of the public. It has been my pleasure as a public health worker for a number of years to find that the dental profession has been anxious and willing at all times to co-operate in furthering this program. I do not mean to say that they have looked at it from a medical standpoint, but they saw the situation as it actually is. They saw that the child should learn early to care for its teeth, and after corrections are made, he becomes the friend of the dental fraternity for life. In this way he gets protection of health through the care and preservation of the teeth.

The educational part he has covered well. It may be worth while for us to talk of the oral hygienist and her part in the public health program. He said the care of the teeth is only part of the work of caring for the whole human body. You cannot disregard the necessity of caring for the teeth any more than you can caring for the vision of the eye, or any other part of the body. We know what a part it plays in the life of the individual. The oral hygienist we believe, in connection with the local public health department, is just as important as any other of the personnel. She should be a part of that unit and realize that she is a part of the unit. She is chosen by the health department, and she is responsible to this department. Her work now is the pre-care of and cleaning of teeth but she is a part of this health department. The oral hygienist in the city of Vicksburg is given a sheet on which to keep a daily record. Every day of the month she is supposed to keep a record of all public calls and of birth certificates delivered. In delivering these we give her a great opportunity to talk to the mother on the preservation and care of the child's teeth—the baby's teeth. The oral hygienist may sometimes have to put placards at the homes where there are communicable diseases, but it is a golden opportunity for her to tell of the dangers of these communicable diseases. She makes pre-natal visits, and keeps a record of school visits, pre-school visits, talks and drills, cleaning teeth, posters of O. K. children, pre-school examinations, work with health departments, school children corrected, adults corrected and tooth brushes distributed.

Dr. W. D. Beacham (Hattiesburg): I have enjoyed this paper very much. We have with Dr. J. F. Brunson of this city, and as our time is limited, I shall gladly give him my time to discuss this paper.

Dr. J. F. Brunson (Meridian): I just came out to hear Dr. Wright's paper. I hadn't even seen the paper, but I know his mental trend so well that I had a pretty correct idea of what could be contained in that paper. Mississippi as you know has been a pioneer in mouth hygiene work. When we inaugurated this work, the way was uncharted, so we had to work out our own problems. How well we have succeeded is indicated by the fact that we are called on to advise with this work in other states. The dental hygienist is new not only to Mississippi, but new everywhere. I am sure that time will show the dental hygienist to be more and more useful in this important field of public health work.

We went farther in our new dental law than any other state in the latitude given the dental hygienist. The dental profession is afraid of the dental hygienist, and is cautious in giving her latitude in her work. But in the new law the dental hygienist has the right, under the direction of the dentist, to make such applications to the dental caries as will arrest decay, and no other rate in the union has gone so far. I have had occasion to investigate the laws of practically all the states of the union in getting this law amended. There are three agencies that materially assist in arresting dental decay—nitrate of silver, fluoride of zinc and copper, and under the supervision of the dentists, the oral hygienist will be allowed to make these applications as they are indicated. The dental hygienist will earn her salary if she did not do a thing else but make the application of nitrate of silver to the temporary molars of the small children in the schools to arrest the decay of those teeth. The proper application of copper will arrest decay, not only superficial decay in permanent teeth, but will arrest decay in the temporary teeth. She will more than earn her salary if she did not do anything else. I thank you for this privilege of giving just this word.

Dr. H. K. Tippin (Gulfport): I would like to ask Dr. Wright what the consensus of opinion is as to the devitalized tooth if it is not abscessed? Does that disseminate toxin throughout the body or not?

Dr. Felix J. Underwood (Jackson): I want to say just this. Of course none of us here doubt the great need for preventive dentistry. We do not need to have to go to the school for information, just look around for ourselves, open the mouth of the fellow next to you and you will see the need of this. I want to make this statement: That Dr. Wright has been a most valuable member of the State Board of Health. I do not think of him as a dentist until I need him on this mouth hygiene program and go to him. The fact of the

business is, he is with other dentists—prominent ones who are interested—guiding this program, but I never look upon Wright as a dentist, but just as any other member of the board. He has fitted in so well, we feel that it is a solid board without any reference to dentistry or what not. I do not look on him as a member of any profession except when I go to him for counsel and pleasure. It has been a pleasure to work with Wright. He has been a great help to me personally, and to our program, dental programs as well as public health programs.

Dr. D. J. Williams (Gulfport): Pursuing the line of thought suggested by Dr. Tippin, I would like to ask what the opinion is with reference to extracting primary teeth in children. It has been our experience both as health officer and doctor that a number of dentists, and I recognize the fact that there are all sorts of dentists like doctors, get up a notion and probably refuse to extract the teeth of children whose gums are abscessed and whose roots are partly absorbed, and they are sitting up there just like a splinter in the mouth. I want to know just what the leading members of the dental profession think—what their attitude is as to the extraction of these teeth?

Dr. Wm. R. Wright (closing): I appreciate the discussion of my paper by Dr. Smith very much. I believe if we had had a lot more time we would have gotten a great deal more out of his discussion than out of the paper, and probably did.

I think Dr. Underwood has been overly generous in his remarks; however, it has been a pleasure to serve with the Board and help in any way that I could. And I will say in answer to the gentleman's question in regard to the devitalized tooth—pulpless tooth as we call it—that he asked me a great big question. That is a question that the dental profession itself has not settled nor solved. I think that I can safely say that the majority of the members of the dental profession feel that a pulpless tooth, which under roentgen-ray shows no rarified area and no indication of trouble, is serving a good purpose and we leave it where it is. I think we are growing more conservative all the time in regard to that, but in cases of pulpless teeth that show an unhealthy area, the profession is pretty well united on the removal of that particular tooth.

And I would say in answer to the question of Dr. Williams in regard to an ulcerated tooth, or an abscessed tooth, that that also is a question that is a little hard to answer under certain conditions. Now if you have a tooth that is sitting directly in front of the first permanent tooth—that is, on the six-year molar, probably holding it in place for a short time, under certain conditions the dentists prefer leaving that tooth there

to retain the proper relationship to that molar, but personally I have about arrived at the conclusion that any part of a tooth that is abscessed should be removed at once.

I certainly thank you very much for your time and consideration, and before I sit down I may not have another opportunity, I want to tell you medical people that dentistry feels under great obligations to certain members of your profession who gave assistance to the dentists in getting a very constructive dental law passed by the last Legislature. You had medical men as chairmen of the two committees in the House and the Senate that these bills come before, and they were very courteous and helpful to us, and we certainly appreciate that very much.

HYPERTROPHIC PULMONARY OSTEOARTHROPATHY.*

LESTER J. WILLIAMS, M. D.,

BATON ROUGE, LA.

This very interesting condition has been recognized as far back as 1889 but so few cases have been recorded that it might be of interest to this Society to present a case that possesses all of the symptoms that students of this chronic condition have detailed.

The early history of hypertrophic pulmonary osteoarthropathy shows that it was named by Marie in 1890, although in 1889 von Bamberger was the first to describe it. Locke in 1915 collected a series of 144 cases and definitely established its relation to the Hippocratic fingers. Prior to this Wynn published 100 cases.

To Hippocrates we are indebted for the first step in the diagnosis of this disease for it was he who noted the connection that existed between clubbed or drumstick finger ends and lung disease, and the further changes of the bones have been observed by later writers.

The clinical signs of hypertrophic pulmonary osteoarthropathy are divided into two groups, the first is of the soft tissues and is marked by a bulbous swelling of

the ends of the fingers and toes. This clubbed or drumstick finger end is called "Hippocratic finger" in honor of the first to mention it. The drumstick finger end is in all likelihood due to hyperemia of the terminal vessels with a fibrous thickening of the subcutaneous tissue for there are no bone changes that accompany this spatulation of the finger ends. The second is confined to the long bones, in which there is a periosteal hypertrophy with subperiosteal deposits of irregular new bone.

The cause of the bone changes is not very definite, as there are several theories to account for the change; it may be that a passive hyperaemia from the restricted pulmonary circulation may account for it, although Marie and Sternberg believe that the changes are toxigenic. The latest theory however is that there is a liberation of nitrogen gas in the bony structures, with an elevation of the periosteum. Bamberger some 36 years ago stated: "The etiology in most cases is uncertain," and up to the present time there has been no great mass of testimony to contradict this statement.

It is not amiss in this paper to call attention to the fact that this so-called Marie-Bamberger disease is not limited to human beings for in 1926 Ball and Lombard reported a case in a ten-year-old lioness. It is interesting to note that since the lioness had last borne young the condition has progressively grown worse. The lung involvement was that of pulmonary tuberculosis with bronchiectasis. All the bones were involved.

Several cases of this disease have been treated with deep roentgen-ray therapy and while no astounding results have been obtained, it is apparently indicated in osteoarthropathy following a malignancy of the lungs, for while not curative some of the symptoms are greatly ameliorated.

The present case, J. B. C., an undernourished scrawny, undeveloped boy of 10 years complained of pain in chest when coughing, and this was almost continuous, with the expectoration in large quantities of a foul, thick purulent sputum. H

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

also complained of pains in both legs. Both feet were swollen and all extremities presented a skin lesion that resembled ichthyosis. His fingers showed the typical "Hippocratic" condition.

The family history was irrelevant. He has had measles, whooping cough and typhoid fever. In 1918 pneumonia followed influenza. He was said to have had abscess of the lung, but was not aspirated and gradually became better, although his cough continued with profuse expectoration. There was no history of temperature, but the patient never felt well since the attack in 1918. He experienced great difficulty in lying down, finding trouble in breathing, and even when standing there was quite a wheezy breath sound.

The physical examination revealed a boy 13 years of age with an apathetic appearance, slightly labored respiration and expectorating profusely a greenish-white pus, especially when attempting to lie down.

The skin was dry and scaly with a hard papular feeling, apparently ichthyosis. The head and neck were negative. The thorax showed a poorly nourished chest with prominent ribs and clavicles. Both ribs and clavicles were larger than normal and bulged in all directions. Breath sounds were exaggerated over the entire lung area, except lower left side posteriorly where they were diminished. In this area spoken and whispered voice sounds were increased. Mucous, sibilant and sonorous rales were heard over the entire chest. No crepitant rales were heard. Heart was enlarged to the left and downward. No murmurs.

The sputum was examined and found negative for *T. B.*, bronchomycosis and bronchospirochetosis.

Roentgen-ray examination shows the lesion limited to the shafts of the long bones both humeri, both ulnae, both radii, the femora and both tibiae and fibulae. The phalanges of the fingers were negative for bony pathology, although pronouncedly "Hippocratic." No pathology was noted in the phalanges of the toes, nor was any observed in the carpal bones, tarsal bones, clavicles, scapulae, ribs or patellae.

The lesion was apparently an elevation of the periosteum.

There was no involvement of the joints and articular surfaces.

The lungs under roentgen-ray examination exhibited a multiple abscess formation in the lower lobe of the left lung, probably of long duration.

I am indebted to Dr. Cecil Lorio who referred this case to me originally and also to Dr. J. W. Watson who allowed me to watch the progress of the case.

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DISCUSSION.

Dr. Cecil Lorio (Baton Rouge): I would like, first of all, to congratulate Dr. Williams on his presentation of this case, and to lay stress on one particular clinical sign or physical sign which is as yet unpublished in literature.

This child presented himself to me some two years ago, having just returned from Charity Hospital, under observation and having had a complete examination of sputum by Dr. Castellani, who reported negative tuberculosis and negative fungus infection of the lungs. The child was in a bad condition when I saw him at home, and was morbid.

The history of the child is that, eight years ago, he developed pneumonia, and, on the sixth day, the diagnosis was made pneumonia, lobar pneumonia; the temperature went to normal and remained normal for about twenty-four hours. After that, the child began to get progressively worse and a diagnosis was made a week later of empyema. One month later, the child suddenly coughed and expectorated large quantities of pus, rupturing through the lung, and, after expectorating, experienced relief. This relief was only temporary and, later on, the cavity was refilled and refilled and the child has been in this condition ever since.

Dr. Williams has mentioned the scarcity of literature, which is correct, because he and I have inquired through every source possible for some literature on the one particular sign, that is, the elevation of the periosteum. The bulging of the fingers, that you may see in a chronic heart are not the same as the one associated with the chronic hypertrophic osteoarthropathy, in which case you have an elevation of the periosteum in deep position.

The one particular thing of interest is that, in lung abscesses (I say this, speaking not from myself as an authority but from Dr. Baker, of Boston, who has at present some thirty cases that have not been entered in literature) of an individual, a new clinical sign is an elevation of the periosteum is not associated with any of the other lung or chronic infections of the lung. These cases will be presented at some later time in the literature, I am sure.

The chemistry has been made of the content of the space between the periosteum and the bone,

and it has been found to be definitely that of nitrogen. The case that Dr. Williams reported, the child has had pain over the long bones of the arm and of the leg. The roentgenograms of those identical spots over the pain show an elevation of the periosteum without any subperiosteum borne in that position at the present time, that is, at the time the picture was taken, it did not show any. So, this elevation, without the bony deposition is of particular interest to find out whether or not the elevation of the periosteum separate from a bony deposition is only an occurrence of pulmonary abscess and not an occurrence of the bronchiectasis or chronic lung infection.

Dr. L. J. Williams (closing): There is just one point that I wanted to add. In 1922, it was thought that Torus Palatinus was a new sign of pulmonary hypertrophic osteoarthropathy. Chassaignac, who first described it as exoste medio-palatine, thought it a sign of syphilis, but that has been proven a mistake.

I thank Dr. Lorio for his discussion of this case, and I hope at some future meeting we will have more papers of this kind, so as to have a more general discussion.

OBSERVATIONS OF PNEUMONIA.*

CHAILLE JAMISON, M. D.,

NEW ORLEANS.

The material presented consists of those cases of pneumonia which have been typed, admitted to the Charity Hospital during the last two years, and also of certain studies based on the observation of cases of this disease admitted to Medical Service Six, which is one of the negro male Medical Services at the Charity Hospital. The incidence of the disease, the type, morbidity, mortality and the effect of syphilis are considered. The following observations refer only to pneumococcus pneumonia; certain cases of streptococcus pneumonia have been reported elsewhere (1), and a pneumonia due to an organism which is as yet unidentified positively, is to be reported at a later date. No attempt is made to study symptoms, physical signs, or routine laboratory findings. Terminal, aspiration, and focal pneumonias have been excluded. Table 1 is a graph representing

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the months in which pneumonia is most prevalent. There seems to be a difference in the seasonal occurrence to that of the Northern States. The greatest incidence in this locality is in February; March, January and November nearly equalling it, and being about equal to one another: January, February, March and April lead in the North. (2). There is a curious falling off in December, which is probably seen only in Hospitals and not in general practice. The summer months are almost free of this disease, and one can see that it is a real problem for only about six months out of the year.

Table II gives the percentage of the four types. It is understood that all cases of pneumonia admitted to the Hospital were not typed, but those that were typed and are here presented were unselected cases, and it is believed give a fair view of this phase of the subject. These figures are of interest as they differ quite materially from those of other localities, where such studies have been made. The occurrence of Type I is about the same, of Type II considerably greater, of Type III and Type IV very materially less. From these figures it can be seen that Type I and II account for 75 per cent of cases of pneumonia seen in the Charity Hospital. From figures drawn from other sources Types I and II account for from 50 per cent to 60 per cent of cases. Type III is very rare locally and Type IV materially less than either Types I or II. Studies from other localities though they show Type III to be the least common, is over twice as frequent as the figures presented here indicate; while Type IV occurs as frequently as Type I, these two headings the lists in other places. (3) (4).

The mortality of all cases typed was 22 per cent, regardless of considerations of age, color or sex, and this is probably a fair estimate of the mortality of pneumococcus pneumonia in Charity Hospital. This is less than the mortality seen in general hos-

pitals in more severe climates. Table III presents the percentage of mortality due to the various types and means that of one hundred deaths from pneumonia the percentages will be as illustrated, but does not mean that of one hundred cases of a certain type any such mortality will occur. On the contrary, so far as my studies go, the mortality of Type I is a little greater, and of Type II considerably less than that given in published figures; Type III is about the same, but Type IV is practically negligible as a death-producer.

The differences in incidence and mortality of the various types of pneumonia account for a conclusion of great importance, and that is that 75 per cent of the cases and 79 per cent of the mortality of pneumonia in this locality are due to Types I and II.

The duration of the various types of pneumonia was studied in fifty cases occurring in negro men in Medical Service Six during the past two years. This averaged 12 days. Cases of Type I averaged 10 days; Type II, $9\frac{1}{4}$ days, and Type III 8 days. In this particular group no cases of Type IV pneumonia occurred; it is possible that this may be attributed to the mildness of the disease, which was such that this class of patients did not seek hospitalization.

Fifty-four cases with pneumonia were tested for the Wassermann reaction. Table V gives the result of this study and needs no particular comment, except that the incidence of syphilis was found by this method to be only about 20 per cent, while it is well known that the incidence of this disease is much higher than this in the negro male. The presence of active syphilis seemed to prolong the pneumonia.

If conclusions are justified, based on the study of such a small number of cases, it would seem that so far as type, seasonal incidence and mortality are concerned, there is a marked difference between pneumonia in this and other localities.

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TABLE I.



TABLE II.

Fifty-nine cases were typed; 22 white and 37 colored. The following table gives the number and percent of each type:

Table I	33 per cent	21 cases.	W6 C15
Type II	25 "	15 "	W7 C8
Type III	5 "	3 "	W0 C3
Type IV	18 "	10 "	W6 C4
Type I and II	17 "	9 "	W3 C6
Type II and III	2 "	1 "	W0 C1

TABLE III.

The mortality of all cases typed was 22 per cent white and colored, both sexes.

Type I	40 per cent
Type II	33.3 "
Type III	6.6 "
Type IV	6.6 "
Type I and II	6.6 "
Type II and III	6.6 "

75 per cent of the cases and 79 per cent of the mortality in lobar pneumonia due to Types I and II.

TABLE IV.

It was possible to determine the average duration of the disease in 50 negro men. This averaged 12 days.

Type I averaged	10 days.
Type II averaged	9 1/4 days.
Type III averaged	8 days.

TABLE V.

The Wassermann reaction was done on 54 cases of pneumonia in negro male adults.
Positive 10.
Negative 41.
Anti-com 3.
The average duration of the pneumonia in the positives was 15 days. None died.

DISCUSSION.

Dr. T. B. Bird, (Baton Rouge): I think most of us are rather listening to the call of the dining room most at this time, and our time is naturally very limited.

Anyone who has dug through the records at Charity Hospital to get up statistics will appreciate, most heartily, the word that Dr. Jamison has done, and I think in discussing the subject of pneumonia, he has maintained his usual high standard of excellence. I believe that the mortality that he has, as a whole in pneumonia, is gathered primarily from the large institutions, and, unfortunately in medical cases, most of our institution statistics are based on the charity units, and they are notoriously bad, so, just what the statistics are in private practice, it is hard to tell.

Charity institutions, where Dr. Jamison and most of the rest of us work, these patients come in very late and in many cases they are desperately sick patients, sometimes we almost think they are sent in there in order to avoid repairing some doctor's statistics as to private practice.

There is another thing where we must remember, that is pneumonia is the only disease known to science in which the mortality records of the profession have gone backwards in the past generation, and the question arises as to whether we are leaving undone something that our father's did that was right, or whether we are doing something that our father's omitted that was wrong.

I think that Dr. Jamison's work in typing has been particu'arly interesting, and he deserves unusual credit in that many of the services are not making an effort to type the cases. He at least has given us something to think about, and that is what we come to these meetings for.

Dr. L. R. Debuys (New Orleans): I want to congratulate Dr. Jamison on his excellent presentation. Presentations such as the one he has just offered tend to stimulate us to do better work and are those from which we secure information to add to our fund of knowledge.

His analysis of the pneumonias at the Charity Hospital is indeed interesting and thorough. There can be no discussion of the statistics for they speak for themselves. It seems to me that that feature of his work, the typing of the pneumonias, offers an unusual opportunity for further investigation. Why should there be just one type of pneumonia for which there is a serum? How many times do we avail ourselves of the serum in that particular type? Why is it that in the other types the various serums have not been of any

use? We might offer explanations and theorize from now on, but in conducting the work as he is doing it is very likely that he may give us some valuable information in the future.

Dr. Chaille Jamison (closing): This study is only preliminary, gentlemen, and we are carrying it on and expect to carry it on very carefully for many years to come.

Now, the point which I wanted to make, and what you are most interested in is this, can we have a method of treatment which is specific for pneumonia; is going to cut short the length of our patients' sickness and give him a better chance of living? I believe that the answer to that is "yes." I use it advisedly. The hospital, however, as Dr. Bird pointed out, is not the place for us to determine that, because we get our patients too late. It is for the man who is called in early.

For instance, the hopeful thing up to now is, that type one serum is practically specific, the results are dramatic, particularly if given early and given in sufficient amounts. So far as we have been able to observe polyvalent serums have no avail against anything but type one. They have little or no effect on type two or three.

TREATMENT OF PLEURAL EFFUSION, INCLUDING EMPYEMA, BY EVACUATION AND AIR REPLACEMENT.*

With Consideration of Twelve Cases of Empyema So Treated

J. A. DANNA, M. D.,

NEW ORLEANS.

The subject of empyema has interested the medical mind since the earliest recorded times. The profession paid little general attention to it, however, until the measles, and later, influenza epidemics during the world war. Large numbers of cases were treated in various military camp hospitals in many of which separate wards and departments were set aside for the treatment of empyema. When the reports to the Surgeon General began coming in and were tabulated and studied, however, an appalling condition of affairs was revealed. The mortality ranged from 30 per cent to 70 per cent, and the conclu-

sion was soon reached by those who had the responsibility that there was something wrong with the existing methods of treatment of empyema. It was found that the highest mortality occurred when thoracotomy was performed immediately after a purulent effusion was recognized. A very material lowering of the death rate followed the adoption of a rule not to do open thoracotomy till inflammatory infiltration of the pleura and mediastinum made this procedure less dangerous several days later. The use of Dakin's solution to sterilize the cavity and supposedly soften and liquefy the exudate very materially shortened the period of convalescence, and reduced to a minimum the number going into the chronic stage and requiring further and more extensive surgery, and contributed further to lowering the mortality rate. More recently, so called closed drainage has become popular in some quarters, a rubber catheter being inserted through a trocar or small intercostal opening and an attempt made to maintain constant drainage by negative pressure through some form of suction, the cavity being irrigated at various intervals with Dakin's or some other solution. The average man doing general surgery, however, is not quite sure that perfection has been reached by any of these methods in the treatment of this condition. Any contribution to the subject at this time should, therefore, be timely.

I have been doing air replacement in the aspiration of effusions of all kinds in the pleura since returning from overseas, where I became very much interested in the subject as a result of the work of Morelli, the pupil and successor of Forlanini at the University of Pavia, who was in command of Ospedaletto 79, a special hospital for the treatment of thoracic wounds, a few miles from the location of Base Hospital No. 102. In a published monograph which has been translated into English by Lincoln Davis under the title of "Wounds of the Lungs and Pleura", he

*Read before the Louisiana State Medical Society at Baton Rouge, April 12, 1928.

reported a large number of chest wounds treated by closed pneumothorax with a remarkably low death rate. He laid stress on emptying entirely every hemothorax, substituting a closed pneumothorax. He did not however, treat empyema this way.

My experience has covered all manner of pleural effusions: cardiac, pleuritic, traumatic, from malignant disease and finally frank empyema. My first experience with the treatment of empyema by this method dates back to February 22, 1923, when I aspirated a patient with a pleural effusion following an influenzal pneumonia. The effusion was purulent and I felt that I would have to do a thoracotomy but the patient was so sick that I decided to wait. I removed, however, 360 cc. of pus by aspiration, replacing the fluid gradually with air, one syringeful of air being reinjected as each syringeful of pus was removed. The patient was very much better next day and for several days after, so the thoracotomy was postponed. As her temperature again rose and she again grew sick, another aspiration was done in the same manner and then a third and finally a fourth, after which she was clinically well. A Roentgen-ray picture three months later showed a perfectly normal chest, so that to my amazement I realized that I had cured a grave case of empyema by the simple process of aspiration and air replacement. I was inclined to consider this rather an accident but resolved to try out the method again at the first opportunity. This opportunity was a long time presenting itself, however, as often happens in our clinical experience. It was not until October 20, 1925, that I had another opportunity to use the method. This was in an old man who had been admitted to the Charity Hospital one month previous in a genito-urinary service with a probable diagnosis of pyelitis. Pus was finally found in his chest. He was in a rather desperate shape as a result of being sick so long. Four aspirations were done on him, a total of 1500 cc. of pus being removed at weekly intervals, the pus each time being replaced

by an equal quantity of air. He had a rather chronic form of empyema and had been sick a long time before securing treatment but responded as well to the treatment as the previous case, which had been quite acute. I now felt, therefore, that there must be something to this treatment and I was quite eager to try it out further.

Within a year after the discharge of the second patient, five other patients who came under observation and in whom the treatment was persevered in, also got well, making a total of seven cases. Three additional cases were seen during this same period. One, an old man of 75 who had double pneumonia three months previously, died two days after a second aspiration which was unsuccessful in that only 20 cc. of fluid was obtainable—the needle being blocked by fibrinous exudate. He died with all the acute symptoms of pulmonary embolism. The two other patients deserted before completion of the treatment. I have now under treatment three other patients, who, I have every reason to believe, will also get well. I have just discharged an eighth cured case. Physical examination and roentgen-ray pictures two weeks after the last aspiration showed no signs of fluid, and during the same period she has had normal temperature and has grown steadily better. I am going to show some slides illustrating her case.

TECHNIQUE

An attempt is made by physical examination and study of roentgen-ray plates to locate the site of the effusion. A point in the inter-costal space corresponding to the lowest point of the empyema cavity is anesthetized with one-half per cent novocain solution, infiltrating all the tissues from skin to pleura inclusive. A large sized needle is now attached by a rubber tube connection to a 50 or 100 cc. Luer syringe. A syringeful of pus is now withdrawn, the tube clamped, syringe disconnected and emptied and then filled with an equal quantity of air, re-connected to the tube and needle and the contained air injected.

This is repeated until on aspiration air comes through the needle, which shows that the needle point is above the fluid line. The patient and needle are manipulated so that the needle rests in the bottom of the pus cavity and the procedure repeated until air again comes from the needle, which indicates that all fluid has been removed. The needle is now withdrawn. Where the amount of pus is large, a second spot in the chest wall is infiltrated with the anesthesia solution and a second smaller needle introduced. The first needle is connected to the suction apparatus, and the second needle to some form of pneumothorax apparatus whereby the amount of air which comes through can be measured. In this way the chest is very rapidly emptied and as each 200 or 300 cc. of fluid is withdrawn, an equal quantity of air is injected, permitting the hydrostatic or rather the physical compression of the lung to be undisturbed. The amount of pus removed has varied from a few cc.'s to as much as 3000 cc. at one time. The procedure is repeated as often as the fluid accumulates or on an average about every five or six days. Patients leave the operating table feeling relieved, and, having had no discomfort during the procedure, except for the local anesthesia infiltration, willingly and cheerfully submit to subsequent aspirations. Our limited experience has made us strongly feel that complete emptying of the cavity is essential to bringing about a cure. In one case this was done with one aspiration. Some cases have had ten or more. The average has been about three. The patient's temperature drops to normal after the aspiration and almost immediately the patient feels very much improved, is able to eat, sit up, and take an interest in all things about him. If the aspiration is not immediately followed by this improvement, it means that there is another cavity which has not been reached or that the patient has some other serious pathology which is making him sick and a diligent effort must be made to find it.

If the ordinary chest needle gets blocked, we use the large many-eyed needle with holes in the side as well as in the end. If this also gets blocked, a small intercostal incision is made and the patient turned so that this lies in the most dependent spot. A forceps is introduced, dilating the opening and removing such masses of fibrin as may present themselves. The patient is instructed to perform forced inspiration and expiration until the cavity is entirely emptied of fluid and fibrin. The patient now takes a deep inspiration and the forceps is withdrawn and the opening permitted to close. A compact dressing is applied. As the opening is small and can be completely controlled by finger pressure the patient is not shocked. It readily closes without drainage.

When first seen, it is often impossible to definitely determine the size and location of an effusion by physical examination and the roentgen-ray picture alone, especially if it has been taken with the patient lying down and with the plate under him. The removal of a small quantity of fluid and its replacement by air makes a study of the size and site of the cavity very much easier. The radiographs must be taken sitting up, however, with the plate in front of or behind the patient or laterally against the chest, the rays being directed in a horizontal direction. In this way the fluid line is shown and the outline of the cavity above the fluid line can be clearly made out. Even if only a small quantity of air is present, by repeated change of position the various walls of the cavity can thus be definitely made out. Of course when the cavity has been entirely emptied, and re-filled with air, its outline stands out clearly in the picture but even if the cavity is nearly empty, if the picture is taken lying down with the rays directed perpendicularly, it may show nothing indicative of a cavity.

In the treatment of these cases, we have learned many things about empyema cavities that we did not know before. For instance, our second case had three separate

cavities, the roentgen-ray pictures showing three separate fluid lines. These cavities communicated with each other and by rolling the patient first one way and then the other, we were able to get the fluid from all cavities against one side of his chest wall and aspirate it. Another thing we have found is that in some of these patients there are separate cavities which do not communicate with each other. The eighth and last cured case comes under this category. In this case, after evacuating quite a large cavity of pus and replacing the pus with air, the patient continued to have temperature and to look sick. The roentgen-ray pictures showed a dense area, and aspiration revealed a larger cavity, above the one which has been previously emptied. This was also treated the same way and she has since gotten well. One case now under treatment started out as a pyopneumothorax, supposedly following pneumonia. Air was present in her chest before a needle had ever been placed in it.

As spontaneous pyopneumothorax is usually looked on as a fatal condition, it is interesting to see what the progress of this case will be.†

Another point that we have learned is that empyema cavities are often irregular and may be in any position in the chest. We used to think that the pus poured into the pleura and gravitated to the lowest part of the cavity. This is very unusual for even when the cavity is in the lower part of the chest, it is usually walled off and if you go a little in front of or behind a given spot, you may miss it.

I have sometimes been very much annoyed by the fact that the largest needles we could procure would become blocked. I had a large one made with a number of eyes in the side of the needle. This worked very much better than the others but sometimes even it gets blocked. In exasperation, I made a small buttonhole intercostal incision in the sixth case, a little girl about 8 years of age, made her empty her chest

by forced inspiration and expiration, removed large chunks of fibrinous exudate and after making sure that there was plenty of air in the cavity, closed the opening with a gauze pad. This cavity did not drain any further and the incision had to be reopened with the forceps to let out some fluid a second time. This time the cavity was thoroughly emptied and the patient made a beautiful recovery. The criticism may here be made that this case was not treated by aspiration and air replacement. But she was, with only this difference, that the pus was not removed with a needle but was removed nevertheless and the fluid was replaced with air, the cavity being immediately closed so that she can be said to have received the same treatment as the others. Altogether, three cases—including one case now under treatment—have been incised and the cavity permitted to close again in the same way. They do not drain. They close up readily.

Accustomed as we are to seeing vast amounts of drainage from open thoracotomy, one is surprised in the average case to find only 200 or 300 cc. of pus accumulating in an average period of six days. This to me is rather strong evidence that we will have to modify our conception of the processes involved in empyema.

What is the mechanism of cure of these cases? An abscess of the thigh or of any other soft region is treated by incision, making sure that the cavity will remain open or that its communication with the outside will not be interfered with so that all secretions from the wound can find an exit. The infection in such a case is taken care of by the tissues without any further aid. In the case of an abscess in the soft tissues, there are sloughs, as a rule, of necrotic tissue which have to become separated and thrown off. As these separate, a clean, granulating cavity is left behind which gradually closes up. There was bacterial infection in such activity; what has become of the bacteria? The treatment has removed those that were in the puru-

†She also got well.

lent fluid and in the necrotic material which came away. Those that still remained must have been destroyed by the fixed tissue cells, phagocytes, antibodies, or what not on the cavity surface. Whatever be the process, localized bacterial infection is cured by the simple process of finding an exit for the contents of the abscess cavity.

I think it should be easy to see the analogy in the case of an accumulation of pus in the pleura. If we remove the liquid and solid contents, we have done what it usually accomplished in the treatment of an ordinary abscess of the soft structures anywhere. By replacing these contents gradually with an equal volume of air, the existing relation of all structures is not interfered with so that no trauma of any kind is done. As the air is gradually absorbed, the negative pressure in the pleura is re-established till, when all air has been absorbed and the fluid has ceased to re-accumulate, the lung is now again in contact with the parietal pleura and the case is cured. If a case can be cured by this means, it has several advantages over the usual other means: There being no trauma to lung or pleura, there is every reason to feel that as happens in the peritoneal cavity where the peritoneum is not unduly traumatized following an infection, the

pleural surfaces will finally be free again and not adherent as must be the case where open thoracotomy and drainage have been done. There being no drain, there is no secondary infection introduced from the outside, hence a shortening of the period of healing, less tendency to rigid incompressible walls, sinuses, etc., that sometimes follow drainage operations. The cavity will close, for it must when all air has been absorbed—hence no chronic cavities. The patient is spared an operation, which, itself, has a certain percentage of mortality. In its stead is substituted an aspiration which is practically painless and to which the patient gladly submits again and again if necessary.

Whether all cases of empyema can be cured by this method, experience alone will teach. I present this paper with the hope that some of you may try it out and find out further its value and limitations.

NOTE—Seven additional consecutive cases of empyema have been treated in the author's service at the Charity Hospital since the reading of this paper, making a total of nineteen, not counting those leaving the hospital before completion of treatment. Five have gone home cured. Two are now convalescent and will be sent home soon. A buttonhole opening was made in one of these five, which closed immediately without drainage. Aspiration with the needle was done in all the others.

Details of Eight Cured Cases

	Age	Hospital	Admitted	Number aspirations	Total cc. fluid	Organism found	Previous history
S. B.	26	H. D.	2/22/23	4	3060	M catarrhalis B Influenza Staphylococci	Influenzal Pneumonia
J. L.	49	C. H.	9/17/25	4	1215	Pneumococcus	Fall, pain in back, pyuria
L. G.	19	C. H.	2/14/26	1	225	Pneumococcus	Pneumonia
R. S.	19	C. H.	4/2/26	2	500	Pneumococcus	Pneumonia
J. P.	46	C. H.	5/11/26	6	2170	—————	Influenzal Pneumonia
A. R.	6	H. D.	7/27/26	4	270 and incision	Pneumococcus	Pneumonia
W. M.	48	C. H.	1/8/27	10	7450	—————	Pneumonia
J. G.	18	C. H.	1/12/28	10	2025 and incision	Pneumococcus	Pneumonia

DISCUSSION

Dr. E. D. Fenner (New Orleans): This is a very interesting subject. I saw some of Dr. Danna's cases, and the roentgen-ray pictures, and thought I would like to try it in young children. I tried the aspirating needles in these young children, but I could not work it. I could not get them to keep still enough to avoid using my needle like a bayonet. They fought and struggled to such an extent that I was forced to abandon the effort. I had a sort of feeling that it might be possible in somewhat older children, but in those under five or six it is like trying to cure a hernia with a truss. Nobody can keep a truss in position in a child old enough to walk. As soon as your back is turned the child pulls it up to relieve the pressure, and the hernia comes down.

The other day I tried to use closed drainage in one of these children by means of a catheter inserted through a canula. It worked well for a while, but then the patient began to pull the tube out every few hours, and my closed drainage was soon converted into the other sort. I have had the same experience with several other cases, so that I am still forced to rely on rib resection and a flanged tube they cannot pull out.

Dr. N. F. Thiberge (New Orleans): Twenty-five years ago, I had a case that would corroborate Dr. Danna's conclusions here, and it was a case of tubercular pleurisy with effusion. I withdrew the fluid and as I was getting through, I applied a good deal of suction to get the fluid out, and just as I was getting through, the needle was disconnected with the suction apparatus and, to my horror, the patient took a deep inspiration and filled up his chest with air. I quickly removed the trocar, expecting the pleura to become infected. He did beautifully, he is still living and is well.

Dr. Danna (closing): There are one or two points I want to call attention to, one is that doing this work is not easy, that it is easy on the patient but it is not easy on the man who does the work, it is very hard work. These four cases that I have on hand now keep me pretty busy, they keep me almost as busy as the rest of my work, because you have to watch them and you have to do the work, yourself, you cannot turn it over to anybody else. So, if you try this work, expecting that it is going to be a cinch, don't do it, because it is hard work and requires very close attention.

We do not use any irrigation in these cases at all. We have merely removed the pus and let nature take care of the rest.

I really would like to see the thing tried out more; this is merely an experiment, if you will, it is something that may work out fine or it may not work out at all.

CLEFT PALATE: WHEN AND HOW SHOULD IT BE TREATED?*

E. D. FENNER, M. D.,

NEW ORLEANS.

For more than thirty years I have been interested in the treatment of cleft palate, and have today under my care a baby whose mother was successfully operated upon by me during her infancy. I have, however, found it impossible to trace the records of cases operated upon prior to 1922. Every case I have seen since 1922 and up to the date of this meeting is included in this study. They are 48 in number, and since I believe it to be a fact that I see and treat a larger number of cases than any other man in this section of the country, this relatively small number of cases indicates that, like other congenital deformities, cleft palate is not as common in Louisiana as in sections where immigration has been very large.

Congenital fissure of the lip and palate originate in very early foetal life-during the embryonal period, before the end of the third month. They are due to a failure on Nature's part to complete the fusion of the lateral branchial arches with the descending frontal, or intermaxillary process. The failure may be unilateral, or bilateral; it may involve only the lip, only the palate, or both. The cleft lip may be partial or complete; the cleft in the palate may involve only the soft palate, it may extend as far forward as the gum, or it may pass completely through the alveolar border, on either one or both sides of the nasal septum.

If we are to understand the rationale of treatment it is necessary to have a clear mental picture of the common varieties of cleft palate seen in practice, namely:

1. *Post alveolar clefts*, divided into:
 - (a) Partial, involving the soft palate, or a portion of the hard palate.

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

- (b) Complete, extending as far forward as the alveolar border of the upper jaw.

2. *Unilateral peralveolar*, passing through the alveolar process, as well as the soft and hard palate.

3. *Bilateral peralveolar*, or tripartite, in which the intermaxillary process protrudes like a snout.

In any of these varieties there may be associated cleft lip, which is found in about 80 per cent of cases of cleft palate.

There is unquestionably considerable divergence of opinion amongst men of experience as to when operation should be undertaken in cleft palate. Details in operative technique are likewise the subject of controversy. To attempt to discuss either of these questions, presenting the arguments pro and con of various surgeons, would prolong my paper through hours instead of minutes. I shall, therefore, present to you only my own sequence and technique.

Much confusion of thought will be avoided if we keep clearly before our minds the fact that there are three important anatomical structures which must be considered independently of each other in these cases, namely: the lip, the alveolar process of the upper jaw, and the roof of the mouth. When we discuss the proper age for operation we should make it perfectly plain which of these structures we are talking about, and this is something that many writers fail to do. They fulminate upon the importance of operating in very early infancy, and when we study their thesis minutely we find they are talking about the closure of a cleft lip, or the reduction of an alveolar gap.

In my own practice I divide the treatment of cleft palate into preliminary procedures, and final operation. Preliminary work includes the closure of a cleft lip, the approximation and wiring of a one-sided alveolar gap, the reduction and wiring of a protruding intermaxillary process. All

of this preliminary work should be done in early infancy, before the end of the third month, if possible. How long before the end of the third month depends upon the nutrition and vitality of the child. Every new-born babe has to demonstrate its capacity to survive, and this demonstration is far more doubtful in the cleft palate case than in the normal infant. It seems wise to wait until the infant has shown that it is capable of overcoming this handicap. The dictum that the new-born is immune to shock and other operative dangers is something I have never been able to accept without reservations. The surgeon who accepts the slogan that, "since the new-born is immune to shock, no mother should be permitted to see her baby with a cleft lip," is, in my opinion, going to meet with many anxious hours as his cases multiply. This is one of those phrases, like "the self-determination of peoples," "peace without revenge or penalties," which is "full of sound and fury, signifying nothing," at least in the practical management of these cases. Lewis A. Sayre, with the same purpose to startle the attention of his hearers to the necessity of early treatment of club-foot, used to say that it should begin before the extraction of the placenta. But did he, or any other man, ever begin to manipulate a club-foot before the vernix caseosa had been washed off the baby's body? No, gentlemen, these extreme positions are suited only to the exceptionally mild case, and are not sound general practice. So much for the preliminary work.

The ultimate aim of all cleft palate surgery is to restore the roof of the mouth, and to provide an efficient muscular membrane to shut off the naso-pharynx for purposes of deglutition and speech. This is the final operative step. All the preliminary procedures are preparatory, or simply cosmetic. This final operative step should not be undertaken until the end of the second year. Very wide clefts, of the Roman arch type, may wisely be let alone for a year or two longer. Clefts involving

the soft palate only, or complete clefts, which are narrow, and present a steep Gothic arch, might be attacked at eighteen to twenty months. Before the seventeenth month the tissues of the soft palate do not hold sutures well, and it remains the consensus of opinion amongst men of the widest experience that two years is the age of choice for the final operation.

The only operation with which I have any experience is the Langenback-Ferguson procedure. In operating I sit at the head of the table, employing the Rose position, with the head of the table somewhat lowered, and the attitude of the patient accentuated by a small cushion under its shoulders. The operative field is exposed by a Whitehead mouth gag, without tongue piece. The tongue is controlled by a suture through its tip, and a depressor, fashioned from a Parker retractor by nearly straightening one end, permits the assistant to hold the tongue out of the way when necessary. The suction apparatus, and etherization through a nasal catheter, greatly facilitate the work. Bleeding is controlled by sponge pressure, and time so spent need not be grudged. The very efficiency of the suction may obscure one's appreciation of the extent of the hemorrhage.

First on one side, and then on the other, lateral incisions are carried through the soft parts just inside the last molar teeth, and slightly prolonged backward and outward around them. I keep these as small as possible, seldom more than $\frac{1}{2}$ to $\frac{3}{4}$ inch long. Suitably shaped elevators are introduced through these incisions, and the whole muco-periosteum is lifted away from the hard palate as far backward as the posterior edge, and as far forward as the anterior extremity of the cleft. The point of the elevator is brought out through the margin of the cleft.

The next step is the liberation of the aponeurotic attachment of the soft palate to the hard. This is accomplished by insinuating one blade of a pair of curved

scissors beneath the flap you have raised, while the other lies free in the nasopharynx, and then cutting outwards till the whole attachment is freed.

Next comes the paring of the edges of the flaps. A tenaculum is inserted into the edge of the cleft at the junction of the soft and hard palate to steady it, and with a very sharp narrow knife (a Von Graefe cataract knife is admirable) a strip is taken away the whole length of the cleft. One should be sure that no islands of epithelium have been left along the edges to interfere with union, and enough tissue should be cut away to ensure broad raw surfaces for approximation.

Having made sure that no islands of epithelium have been left along the edges of the cleft, the flaps are sutured. The stitches are passed through and through the flaps, close together, from the tip of the uvula to the anterior extremity of the cleft. Black silk, fine black silkworm gut, or "dermal" sutures may be used according to the fancy of the operator, and they may be simple, mattress, or "end-on-mattress." The only thing that is important is that the flaps should have been sufficiently freed to permit the sutures to be tied without any tension. If they have to be dragged upon, the cleft will certainly break down. As a rule I carry three or four sutures of black silk along the nasal side of the soft palate, and finish off by introducing one of two heavy "tension" sutures deeply through the soft palate to restrain the action of the muscles. This completes the operation, except for the introduction of a light packing of iodoform gauze into the lateral incisions.

After treatment consists largely in letting the child alone, except for feeding with liquids, and following each feeding by plenty of cool water to wash off the buccal surfaces. Argyrol instillations into the nostrils, and, in older patients, bland alkaline mouth washes may be given. While I am convinced that a lot of non-

sense has been written about the devastating effects of crying, there is certainly little to be gained by precipitating a struggle with a terrified child in order to perform a surgical toilet of the mouth.

The danger period to the line of sutures is from the fifth to the eighth day, and threatened breakdown is announced by the appearance of mucous, thick and tenacious, about the sutures. Soon afterwards some gaping will be noticed somewhere along the line, usually at the junction of the hard and soft palate, and frequently at the anterior extremity of the cleft. The break may be confined to a small area, or it may involve the whole line. Moderate sized openings often close of themselves if given time, or a secondary plastic may be necessary to complete the anatomical cure.

Failure is due to three factors: (a) Impairment of the circulation by too extensive lateral incision, and brutal handling of the flaps; (b) infection; (c) tension on the sutures. The latter is, in my opinion, by far the most potent cause of failure. As shown in two of my cases, even a violent post-operative diphtheria may occur without interfering with perfect healing of the cleft.

A good many writers claim to be able to lift the flaps without injuring the palatine artery. Personally, I do not see how this can be done. Certainly in many cases the artery has been torn without preventing perfect union. Where moderate sized openings persist, their healing may be assisted by stimulation with nitrate of silver, or in older patients, by putting in a light vulcanite plate to cover the roof of the mouth.

Failure of a cleft palate operation is a surgical disaster, because the abundant scar tissue makes a secondary operation much more difficult and uncertain. The closure of the soft palate is more important to the patient than union of the hard palate. A dental plate can readily be fitted to occlude a hole in the hard palate, but

no really efficient obturator has been devised for an open soft palate.

The chief aim of cleft palate surgery is to enable the patient to speak clearly and intelligibly, and statistics upon this functional result are exceedingly difficult to obtain. There can be no doubt that perfect speech is found in only a small percentage of cases. It must be admitted, however, that to restore the alveolar arch, to close off the mouth from the nose, and to give the patient a comely mouth, is to have done much to deserve the gratitude of both parents and patient, even though speech remains defective.

Cleft palate surgery is not easy. The pathway to a technique that yields 70-75 per cent of anatomical successes, and an additional 20 per cent in whom only small openings persist, is strewn with failures. The ordinary training of even a highly competent general surgeon offers little security. The "occasional" operator is doomed to disappointment, and his inevitable failure reduces very greatly his patient's chances of ultimate cure. He who has the opportunity to see a succession of cases, and who has determined to perfect himself in the work, may solace himself by the reflection that he may surmount the difficulties by practice, but he who expects to operate only once in two or three years jeopardizes the future of his patient without the consolation of feeling that later patients may profit.

In this connection a quotation from a very elaborate and splendidly written article on cleft palate, by Francis W. Goyder, in the *British Journal of Surgery*, Vol. 1, No. 2, is very apposite. He says: "It seems also, that a special interest, and perhaps a special capacity, is required to make an otherwise excellent surgeon into a successful operator in cases of cleft palate. Certainly experience, not of surgery in general, but of these operations in particular, is essential. . . Many improvements have been introduced into the oper-

ation, but those which have survived have been rather simplifications than elaborations of the original method. Most of them have been devised to get rid of tension in the sutured edges; but the more experience a man gets, the smaller his lateral incisions become; he gets rid of tension in other ways. But let the beginner try to avoid long lateral cuts, and his sutured clefts will not long remain closed.

In conclusion, let me confess that I have been able to touch but lightly upon the varied problems of cleft palate surgery. I have given my own convictions as to the time sequence and operative technique, but I realize that there are many who would take issue with some of the views herein expressed. But in this work a man must adopt an operative plan, and practice it until he can be reasonably sure of a favorable result.

DISCUSSION.

Dr. Fuchs (New Orleans): I just want to say a word about cleft palates. As an ear, nose and throat man, we see quite a number of them. I was fortunate enough to see several cases Dr. Fenner operated on, later taking out the tonsils, and the results were excellent. I do not know whether he picked out the excellent ones and sent them for tonsillectomy or not.

Dr. Fenner spoke about the sutures coming out. I think I mentioned to him, some time ago, about seeing some patients in Manhattan, whom Dr. McKenty operated on, and he used the little stunt that appeared to me very good. In order to protect the suture, he has a metal disc and he places that over the suture and ties it with a lead band extending from one lateral incision to the other. He said that in most of the cases loosening of the sutures were due to the tongue rubbing on the suture line and loosening it, and with that plate protecting it, there was no chance for the tongue to loosen it up. That may be just a little point.

Dr. Lorio (Baton Rouge): I would like to ask Dr. Fenner to discuss, for a moment, the end results of cases as far as speech is concerned, especially in these cases that he has had a complete closure of the palate. I have had two or three cases in my own family that have been operated on, some as many as two, three, four times, I think my sister was operated on six different times, one of my brothers was operated on for a cleft completely closed, but it seems the soft

palate does not always function well, even after you get a closure of the palate there is still a nasal inclination, and to overcome that, I notice most of these patients have a peculiar expression of the face, the larynx seems to be in constant motion, trying to close during conversation, in order to cut off the air. I do not quite understand that, because if the palate is all closed, I do not see why the patient would want to constantly close the larynx in order to speak intelligently and plainly. I would like to ask if you can explain that for me, please.

Dr. E. D. Fenner (closing): I cut out a good deal I might have said out of respect for the time limit. This question of the speech is, of course, tremendously important. It is unfortunately true that, even where you have gotten an anatomical success speech remains defective in many cases. If the operation is delayed till the patient is eight, or ten, or fifteen years of age, you never get any improvement in the speech. Clear articulation and good speech depend upon a functionally good soft palate. It must be flexible. It must be sufficiently long to lie against the posterior pharyngeal wall, and cut off the naso-pharynx completely. Owing to the very nature of the deformity, one of the inevitable tendencies of the operation itself is to shorten the palate somewhat. In addition, the cutting of the attachment of the soft to the hard palate, and the other steps of the operation, results in the formation of a good deal of scar tissue, with the result that the palate loses some of its flexibility.

In a considerable number of cases, while the major part of the palate is closed, there remains a hole at the junction of the hard and soft palate. This hole will frequently close of itself in a few months, but in the process there is contraction of the tissues which tends to draw the soft palate forwards, and shorten it a little more.

In reference to that perforated plate, we all know that in older patients who have been left with a small hole in the palate if we can get a dentist to make a plate to fit over the roof of the mouth the hole will generally close. Dr. Bunnell, of San Francisco, is not a pioneer in this suggestion. A surgeon in New York, whose name I cannot recall at the moment, was using such a plate in young infants a number of years ago. He sutured it to the gum so as to keep it in place, and claimed that it was of great value in protecting the palate. I did not say anything about the plate because I have not had a chance to try it. I had no one to make one for me, and could not afford the expense. My own experience has been that where I could bring the flaps in contact without tension, and did not bruise the tissues too much, I got success. Where I had tension I got failure.

TULAREMIA, REVIEW OF LITERATURE WITH REPORT OF CASES.*

W. S. KERLIN, M. D.,

SHREVEPORT, LA.

Tularemia is an infectious disease caused by the bacterium *tularensis*. Primarily it occurs in nature as a fatal bacteriemia of rodents, especially rabbits and hares. Secondly it is a disease of man, transmitted by the bite of an infected blood sucking fly or tick, or by contamination of his hands or his conjunctival sac with portions of the internal organs, or with the body fluids of infected rodents, flies or ticks.

Cases have been reported from thirty-nine states of the Union and the District of Columbia. Ground squirrels, wild rabbits and hares, wild rats and mice have been found infected in nature.

Transmission to man occurs (1) by the bite of the horse fly, (2) wood tick, (3) tick (species undetermined), (4) contamination of his hands or conjunctival sac with infected organs or body fluids of infected rabbits, flies or ticks, the last mentioned being the most common cause, therefore most cases occur in market men, hunters and housewives, as a result of cleaning rabbits.

Laboratory workers become infected by performing or assisting at necropsies of infected guinea pigs, rabbits or white mice, or by handling infected ticks.

Bacterium tularensis is a small pleomorphic organism, gram negative, non-motile and non-spore bearing, and grows only under anaerobic conditions.

There is a bacteriemia early in the disease as cultures of the organism can be isolated from the blood of man during the first week. No instance has been reported of the spread of the infection from man to man by mere contact or by the bite of an insect which has previously bitten a pa-

tient. The disease is essentially of a subacute and chronic character in man. This applies to the lesions as a whole. Pathologists unfamiliar with the lesions in man are likely to mistake it for tuberculosis. The granulomatous character of the lesion is very noticeable. Four clinical types are usually noted. (1) Ulcero-glandular, the primary lesion being a papule, later an ulcer, and accompanied by an enlargement of the regional lymph glands. (2) Oculo-glandular, the primary lesion being a conjunctivitis with enlargement of the regional lymph nodes. (3) Glandular without primary lesion but with enlargement of the regional lymph glands. (4) Typhoidal without primary lesion and without glandular enlargement.

The average incubation period is about three days. The onset is usually sudden with a chill, headache, profound prostration, generalized body pain, sweating and fever. The fever usually lasts from two to three weeks. The white cell count is usually moderately increased. A very definite skin eruption is noted in some cases being macular, papular, or pustular.

Convalescence is slow; it is unusual for a patient to be at work again at the end of a month. Frequently they are not even able to work the second or third month. Some have not entirely returned to normal for six months to a year. Suppuration of lymph glands has been noted ten, twenty-two and twenty-four months after onset of disease. This happened in the first of the following cases to be reported; the inguinal glands suppurating two years after the original infection. Recurring mild attacks of fever have been noted. Of five hundred and sixty-five reported cases to date, twenty terminated in death.

Because tularemia is not borne in mind it is erroneously diagnosed "flu," dengue fever, septic infection, typhoid fever and sporotrichosis. The following points should be borne in mind when making a diagnosis of tularemia. (1) A history of having dressed a rabbit, or being tick or fly bitten.

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(2) A primary lesion of the skin in the form of a papule, followed by a persistent ulcer. (3) Persistent regional glandular enlargement. (4) Fever from two to three weeks duration. The diagnosis is proven by obtaining an agglutination of the patient's serum with bacterium tularense. A study of the blood serum of two hundred and eighty-nine cases of tularemia by Francis, tested for agglutination of bacterium tularense, showed a complete absence of agglutinins in the first week of illness, the constant presence in the second week, an abrupt rise in the third week reaching its maximum in the fourth, fifth, sixth or seventh week, a fall in titer in the eighth week; a gradual decline thereafter; persistence of agglutinins in long recovered cases; and the failure of agglutinins to entirely disappear in any case, even 10, 14 and 18 years after recovery. One attack confers immunity in man.

Unique features are (1) the certainty of infection of laboratory workers, (2) the persistence of agglutinins in the blood of long recovered cases, (3) the granulomatous character of the lesions in man as contrasted with the lesions in animals, (4) the great variety of insect and animal hosts.

The treatment is symptomatic. No preventive vaccine or curative serum has been perfected. Four cases of the ulceroglandular type occurring in Louisiana are reported.

Case No. 1. E. T., white male, aged 39 years, of Bossier Parish. Admitted to the Schumpert Sanitarium on August 7, 1923, complaining of generalized pain over body, severe prostration and fever. The onset of his illness was sudden fifteen days prior to admission to the hospital, with rigors, severe headache, pain in back and legs with high fever. After the above symptoms had persisted for five days, a red macular eruption appeared over practically the entire body. Within three days the eruption was vesicular, then pustular; fading in about ten days but still noticeable on admission to the hospital. He was treated before admission for dengue fever. Coincident with the onset of symptoms a large wood tick was discovered by the patient on the left shoulder surrounded by an area of intensive inflammation, the size of a half dollar. This area sloughed out,

leaving a punched-out ulcer, which healed in about three weeks and on healing left a scar. The glands in the left axilla became inflamed and tender about this time and suppurated within from six to ten days, draining for about three weeks. He ran an irregular daily fever for twenty-eight days. There was a moderate leukocytosis; a negative Wassermann, typhoid and para typhoid reaction. Up until the onset of the present complaint he had always enjoyed excellent health. A diagnosis of tick fever (Rocky Mountain Spotted Fever) was made as the symptoms fitted in fairly well. Convalescence was very slow; he lost fifty pounds in three months time but was partially able to resume his work within a period of six months. Attacks of low grade fever recurred at intervals thereafter, and in July, 1925, his left inguinal glands suppurated without any apparent cause. During a period of about three years he consulted several doctors, hoping to obtain relief from his extreme weakness. In January, 1927, he consulted us again when it was thought that he might have tularemia. The blood serum a few days later agglutinated bacterium tularense in dilutions of 1:10, 20, 40, and 80. For the next three months a chronic abdominal pain became aggravated and on April 30, 1927, he was admitted to the hospital and within twenty-four hours definite symptoms of intestinal obstructions appeared. On opening the abdomen every six to eight inches of the small intestine was found to be surrounded with a granulomatous mass, rather firm and malignant in appearance and constricting the lumen. The mesenteric glands were moderately involved. Due to the extensive involvement and the character of inflammation, no further operative interference was attempted. Excised gland revealed only a granulomatous type inflammation. Strange to relate, his post operative recovery was uneventful, and except for a few abdominal flareups, his health continued as before operation. A few months later he visited the Mayo Clinic. A report from them was to the effect that radiologically his gastro-intestinal tract was entirely negative and that his blood serum agglutinated bacterium tularense in a dilution of 1:160. In February of this year he was re-admitted to the hospital with rather severe abdominal pain but after several days on a liquid diet his symptoms subsided. His blood serum at this time agglutinated bacterium tularense in dilutions of 1:10, 20, 40 and 80.

Case No. 2. Through the courtesy of Doctor W. M. McBride, I am privileged to report the following case.

Mr. H. of Jackson Parish removed a tick from the left leg on April 5, 1927. He called Dr. McBride on April 10, complaining of having had a rigor followed by high fever, prostration and

generalized body pains. The above symptoms came on very suddenly and continued rather severe for three days. For the next three weeks his fever varied from 99 to 103 degrees. During this time the tick bite, at first insignificant, gradually developed into a circular punched-out sloughing lesion nearly the size of a dollar. The left inguinal glands became inflamed and tender soon after the onset of symptoms and were on the verge of suppurating on one occasion. Several days after onset an indurated bluish macular eruption appeared in the region of the left groin, a few scattered ones also being observed over the remainder of the body. The eruption faded after the fifth day. At the end of one month the ulcer was slowly healing but was far from well. Blood serum on May 10 agglutinated bacterium tularensis in dilutions of 1:10, 20, 40, 80 and 160.

There was considerable weight lost for the first three weeks.

Case No. 3. 183838—Mrs. McC., white, female, of Jackson Parish, age 30 years. Admitted to outpatient department of the Charity Hospital, Shreveport, Louisiana, August 20, 1927, with the history that she had been bitten by a tick on the left leg in February, 1927, causing her to remain in bed six weeks. Prominent symptoms at the onset were fever, prostration, and severe pain in the left leg, with marked swelling of the regional lymph glands. These glands suppurated and were incised early in the course of the disease. She had been very weak since the tick bite, with the loss of thirty-five pounds in weight. Examination at the clinic revealed a small healed ulcer, bluish in color on the calf of the left leg. There were also several small scars along the inner aspect of the left thigh and inguinal region. The urine analysis and blood Wassermann were negative. Blood serum agglutinated bacterium tularensis in a dilution of 1:80. The patient stated that at the time of her illness she noticed many sick rabbits around her place. She was able to resume part of her work within three months. A letter from her the past month was to the effect that she was able to resume her usual work within eight months, but that she had not entirely regained her strength.

Case No. 4. M. D., of Webster Parish, colored, male, age 60 years. While hunting in the swamps during the first week of October, 1927, he was seized with a chill, followed by fever and pain in his right shoulder and axilla. On returning home he discovered a small bluish red papule beneath the right clavicle. He was very sick that night with high fever and prostration. The next morning the right axillary glands were swollen and tender. He remained in bed two weeks with fever, pain in right shoulder and arm and extreme weakness. During this time his hands

and feet burned and pained him considerably. The skin of palms and soles also peeled off in large scales. Examination on October 14, 1927, (about two weeks after onset of illness) revealed a small punched-out ulcer with undermining edges beneath the right clavicle. The right axillary glands were swollen and tender. The skin of the palms and soles was peeling off. He complained of neuritic pain in the right chest, shoulder and arm and weakness. His temperature was 101 degrees, the leukocyte count was 12,500; the differential count was within normal limits; the blood Wassermann and urine analysis were negative. He returned one week later on account of suppurating right axillary glands, persistent fever and pain in shoulder and arm. The glands discharged for two weeks and on healing left a scar. The ulcer healed in about three weeks and likewise left a scar. In response to a letter several days past he returned for further questioning. He stated that he had been unable to resume work in any form on account of weakness and soreness over the body. He still complained of darting pains in the right chest, shoulder and arm. His feet and hands still tingled and burned. Fever had recurred at irregular intervals on his attempting to work. He lost thirty-five pounds during the first month of his illness, regained several pounds but has lost again recently. His blood serum agglutinated bacterium tularensis in a dilution of 1:160.

SUMMARY.

(1) Four cases of the ulcero-glandular type of tularemia are reported as occurring in Louisiana.

(2) Cases 1, 3, and 4, were unable to resume even a part of their work under six months. Case 1, at the end of five years is able to perform part of his work.

(3) There was considerable loss in weight and extreme weakness in all four cases.

(4) The source of infection in three cases was from the bite of a tick (species undetermined). Case 4 remains undetermined but presumably caused by the bite of a fly or tick.

CONCLUSIONS.

Tularemia is evidently more prevalent in Louisiana than has been realized in the past. This brief review of the literature with the report of four cases is presented with the hope of stimulating further interest and closer observation with the view

of more frequent recognition of this comparatively new and interesting disease.

Note: All agglutination tests were made by Doctor Edward Francis of the U. S. P. H. S., Washington, D. C.

E. T., case No. 1, expired in January, 1929 after a lingering illness of 6 months duration. The principal symptoms consisted of an intractable diarrhea, frequent bulky, light colored stools, strongly acid in reaction, fatty acid crystals, many fat globules and starch cells. He had frequent attacks of abdominal pain. Weakness and loss in weight were pronounced. The above symptoms are fairly typical of a chronic pancreatitis. An autopsy was not obtained.

DISCUSSION.

Dr. W. P. Butler (Shreveport): I think, undoubtedly, we have been missing some of these cases, due to the relative infrequency of it, or to the fact that we simply have not been on the lookout for it, not being informed until the last two years. As the time is short, I will not take up any of your time to discuss the bacteriological or seriological aspects, though we have been doing a little of that in Shreveport.

There is one case which Dr. Kerlin reported under the name of Taylor's case, Number One, that, had it not been for the previous warning that we had, the pathological report would possibly have been different. This was a case that was operated on with a rather extensive involvement in the abdomen, and one of the mesentery nodes was sent to the laboratory for diagnosis.

As we know, there is nothing characteristic or specific in the pathology of this condition, particularly in a secondary node, but we did find we were able to eliminate tuberculosis or any form of malignancy, or the possibility of its being secondary to some intestinal parasites, and the presence of tularemia made us suspect this condition. These slides were sent to Dr. Ewing's laboratory at Cornell, and a report from him verified at least the suspicion, as we know we cannot make a positive diagnosis.

I wish to repeat, not to take up any more time, that I believe we should be more on the lookout for this condition, because we are undoubtedly missing some of these cases thinking they are possibly of a tubercular nature. I thank you.

Dr. Foster Johns (New Orleans): I think that Dr. Kerlin's contribution is quite timely. I know that tularemia is gradually spreading over Louisiana. I have been on the lookout for it practically ever since Francis described the infection in Mon-

tana, and while I have had several suspicious cases, it was only a few weeks ago that I was able to definitely find a case occurring in the environs of New Orleans. This was a case seen in consultation with Dr. Murphy, of Garryville, and which gave a very high agglutination for *Bacillus tularensis* when the blood serum was tested by the Public Health Service in Washington.

I believe that we are going to see a great deal of tularemia throughout Louisiana and I believe that steps should be taken through the Isaak Walton League and through other means to warn the populace about this danger.

I also had the pleasure of seeing Dr. Kerlin's patient several months after the initial lesion occurred on his finger and during this time, from the history particularly, it did seem that the diagnosis of Rocky Mountain spotted tick fever was the correct one. He was a very sick man at the time and with all of the available laboratory data that I could gather I could come to no definite conclusion regarding the etiology of his pathologic process.

I wish to congratulate Dr. Kerlin for continuing to study this case and finally arriving at the accurate diagnosis of tularemia.

Dr. N. M. Collins (Hosston): I will not take up any of your time on this, except to thank Dr. Kerlin for including the report of my case in his paper. This particular negro whom I saw, I want to impress upon you that when I first saw him, after he had been sick five or six days, was a very, very sick man, he was almost in a dying condition; but, for some reason or other, he had a gradual improvement. He was weak and emaciated for a long time. He is now gaining strength and weight, slowly.

Another thing, I made inquiry around in that section of the country, and I found that the rabbits are dying by numbers this year. One negro told me that he found five dead rabbits in one pile, so probably tularemia will kill out the rabbits and we will get rid of tularemia.

Dr. W. S. Kerlin (Shreveport, closing): I have but a very few remarks to add, in closing. Just a few days ago, I received a communication from Dr. Francis in which he states that tick bite is a source of infection in the Southern States, which is receiving much recognition. The record for these cases now stands in the Southern states: Louisiana, eight cases; Arkansas, six cases; Tennessee, six cases; Texas, two cases; Oklahoma, two cases; total of twenty-four. The species of Southern tick is still undetermined, because nobody has caught a tick on a man in actual transmission and forwarded it for identification. It is through Doctor Francis' untiring efforts that tularemia is being so universally recognized.

A CONSIDERATION OF THE SEDIMENTATION RATE OF ERYTHROCYTES.*

E. H. LAWSON, M. D.,

NEW ORLEANS.

For the past several years quite a bit of attention has been directed toward the sedimentation rate of erythrocytes, not only in the establishment of a uniform and simple technic, but in its application in various diseases with regard to its prognostic value. The estimation is by no means a new procedure, but dates back to the time of Galen, who first noticed that in cases of infection the settling of the erythrocytes was more rapid than in the blood of normal individuals. Later, such men as John Hunter, Virchow and others noted the same phenomenon. "The clear yellowish serum that was left by the sinking away of the red cells was called the 'crusta inflammatoria' or 'crusta phlogistica,' and was regarded as an exceedingly important sign. The color, thickness, and consistency of the crusta inflammatoria were considered significant in the diagnosis, treatment, and prognosis of the disease. As the practice of bleeding patients fell into disrepute, the sedimentation of the blood cells and the crusta inflammatoria were forgotten." Biernackie in 1897 reported seventy-five cases in which the sedimentation test had been performed. At this time he thought this test might have some value. In 1917, Fahreaus rediscovered the phenomenon and perfected a technique for the estimation of the sedimentation rate of erythrocytes. His technique consisted of mixing 8 cc. of human blood with 2 cc. of 5 per cent sodium citrate solution, and noting the time for the complete sedimentation of erythrocytes. Many variations in this technic have been made in the more recent investigations, such as the modification of the percentage of the sodium citrate solution used and the type of tube employed.

For instance: Peyre used an isotonic or 3½ per cent sodium citrate solution. Westergren substituted 3.8 per cent sodium citrate. Zechner and Goodell used 3 per cent sodium citrate and employed an ordinary centrifuge tube graduated in .1 cc. intervals, recording the height of the red cells after one hour. Linzenmeier, in his first work on the subject, used glass capillaries 1 mm. in diameter, bearing several marks to measure the proper ratio of blood and sodium citrate, and took a record of the time required for the height of the plasma to reach the 18 mm. mark. He later developed a technic, using tubes 5 mm. in diameter and 6½ cm. in length, having a capacity of more than 1 cc., and marked at the 1 cc. and 18 mm. point. The technic was to, first, draw up .2 cc. of a 5 per cent solution of sodium citrate into a syringe and .8 cc. of blood taken from a vein in the arm. After mixing the blood and citrate, the solution was transferred to the tube until the marginal level reached the 1 cc. mark. The time was then noticed when the plasma volume reached the 18 mm. mark and the readings were then recorded in minutes. Friedlaender has modified the Linzenmeier tube by adding the graduations at the six, twelve, and twenty-four mm. mark.

Morriss and Rubin used 1 cc. serological pipettes graduated in hundredths, a dilution of one part 3.8 per cent sodium citrate and four parts of blood, and took their readings at the end of one, two and twenty-four hours.

Cooper used 20 per cent potassium oxalate for his anticoagulant.

Recently, Hunt, using an ordinary 5 cc. syringe, mixed 3.5 cc. of blood with .5 cc. of 1.6 per cent of sodium citrate and placed 1 cc. of the mixture in a 1 cc. pipette graduated in hundredths, noting the drop at periods of one hour and two hours, applying the term sedimentation index to the curve plotted when the volume of plasma is the abscissa and the time required in minutes as the ordinates.

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

Concurrent with the development of an accepted technique have been investigations to determine the etiologic factor in blood sedimentation.

Gram found that the amount of fibrinogen increased with a more rapid sedimentation rate.

Fahraeus and Hober decided that the increase in agglutination of the erythrocytes was primarily due to a change in the electric tension between negatively charged erythrocytes and positively charged bodies in the plasma.

Smiley explains the increase in the rate as due to an increase in the fibrogen and globulin with a relative decrease in the albumin content of the plasma. The above factors, hence, give an increase in the viscosity and diminution in surface tension of the plasma and in the erythrocytes, a diminution in the negative electrical charge with a change in the surface tension and an increase in the viscosity. He also noted that the temperature affected the rate as he found that the sedimentation rate was more rapid at incubator temperature than at room temperature.

Cooper found that as the cholesterol contents of the blood increase, the sedimentation rate becomes more rapid. He also found that defibrinated blood gives a slower rate after defibrination than previously.

Rubin explained the rapidity of the rate as due to tissue destruction, and that the bacterial toxins, products of protein catabolism and inflammatory products accelerate the rate; therefore, the more acute the condition, the more rapid the rate; the less virulent and numerous the bacteria, the less variation of the rate from normal.

The value of the sedimentation rate of erythrocytes has been recognized in the diagnosis and prognosis of many conditions. For instance, Lohr and Pohle used this method as an aid to differentiate between carcinoma of the stomach and peptic ulcers

of the stomach. They found that in 50 per cent of carcinomas of stomach, the sedimentation rate was increased, while in only 10 per cent of the peptic ulcers such an increase was shown. In the differential diagnoses of diseases of the adnexa, ectopic gestation, and other masses found in the pelvis, the sedimentation rate has been very valuable, the rate being increased in acute pelvic infections, while in some of the other pelvic masses, the rate is normal. This technic is also employed as an indication to the most appropriate time for operation in acute pelvic infections, as the more acute the condition, the more rapid the rate and the more grave the prognosis, when surgical intervention is used at this time. Polak has advised the use of the sedimentation rate as an indication of the time to operate on pelvic infections and has found that following a pelvic operation, a low sedimentation rate is an early index of a beginning peritonitis or perimetritis. Baer and Reis, using the Linzenmeier-Friedlaender technic found that with an increase in the activity in the pathology present, there is found a corresponding decreased sedimentation time. For example, ovarian cyst showed a sedimentation time of 112 minutes; chronic salpingitis, 91 minutes; subacute salpingitis, 53 minutes; acute salpingitis, 28 minutes. They also found that a continued rapid sedimentation time seems to denote a greater virulence of the infecting organism or lowered resistance of the patient; therefore, a corresponding protracted period of illness, and that a comparison of the post-operative course of the cases with varying degrees of infection, would indicate that an operation should be delayed and not attempted on patients showing a sedimentation time under 115 minutes.

The velocity of the sedimentation rate in cases of pulmonary tuberculosis is directly proportionate to the activity of the disease, for the greater the extension of the tuberculosis the higher the sedimentation rate. However, according to Sed-

linger, a normal sedimentation rate does not exclude an active tubercular process.

Typhoid fever shows an interesting variation in the rapidity of the rate during the course of the fever. The rate at first is slow, then gradually increases until the third week, after which it remains high for some time, even after the temperature is normal. Such is the finding of Gerecke.

Culmeyer found a high sedimentation rate in an acute rheumatic polyarthritis, which was directly proportionate to the clinical symptoms, as this high rate fell with the retrogression of the symptoms. Some of the other conditions which the sedimentation rate has been used for as an aid in the diagnosis is late pregnancy, syphilis, and most of the acute inflammatory conditions.

Personal experience with this laboratory method has borne out several of the above observations. For instance, in twelve cases of pulmonary tuberculosis, in conjunction with Dr. R. H. Potts, the sedimentation rate was found directly proportionate to the activity of the disease.

In acute pelvic infections, Dr. T. B. Sellers and the author has found the sedimentation rate to be increased. Using the Cutler technic, the curve shows a sudden drop or a complete sedimentation of the erythrocytes within twenty-five to thirty minutes, and, using the Friedlaender modification of the Linzenmeier method, the sedimentation rate has been found to range from eighteen to forty-five minutes. Also, in acute infections, such as acute appendicitis, the sedimentation rate which was high before operation, and read between twenty and forty-five minutes before operation, showed a much slower rate for several days following operation, as the patient began to improve. In these cases, the rate of sedimentation coincided and fell with the leukocyte count. However, there are some cases of acute inflammation which show a decrease in the leukocyte count, but which still show a high velocity of the

sedimentation rate. Such cases as these are considered by Polak as poor surgical risks.

In conclusion, I might say that the technique of the sedimentation test, using the Cutler or the Friedlaender modification of the Linzenmeier technic, is simple and requires very little time; that no definite and concise explanation of the test has yet been found; that the sedimentation rate is of diagnostic and prognostic value when considered in conjunction with other laboratory findings and the clinical symptoms; and that it is of some aid to the surgeon in deciding when to operate infectious cases.

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DISCUSSION.

Dr. T. B. Sellers (New Orleans): Dr. Lawson has just presented to you one of the most valuable diagnostic and prognostic laboratory tests for the presence of infection. One man has stated that the sedimentation test is as accurate as the clinical thermometer. The sedimentation test should not replace blood-counting. For the past several months we have run the sedimentation test routinely in all of our suspected and recognized pelvic infection cases and our findings have tallied with the reports of Drs. Polak and Black. It is of value in differentiating ovarian cyst, ectopic pregnancy, and pelvic infection. The sedimentation time in ovarian cyst or ectopic pregnancy is

prolonged or normal, while in pelvic infection it is reduced. Polak and Black state that in cases of pelvic infection the abdomen should not be opened if the sedimentation time is less than one hour, even if tenderness has markedly diminished, and the temperature, blood count and pulse have been normal for weeks. After twelve years of experience at Charity Hospital in handling pelvic infection cases, I realize that we cannot depend on the temperature, blood count and subjective signs and symptoms, as a small percentage of these cases will run an absolutely normal temperature and normal blood count, and still, at operation, will show a sub-acute condition. I believe the sedimentation test will greatly benefit this class of patients.

Dr. A. Jacobs (New Orleans): I want to thank Dr. Lawson for the privilege he has extended to me to discuss this interesting phenomenon. Since it is really the only blood symptom that has been known on the stage of medical research until Virchow's new theory of cellular pathology. It has caused a great deal of speculation as to its causation.

There are several theories, (a) that there is a diminution or loss in the electrical charge of the red blood cells, (normally they are charged negative). In certain diseases the electrical charge being diminished or lost the rbc have a tendency to agglutinate and sink rapidly.

(b) Plaut explains this phenomenon by an increased fibrogen in the plasm.

(c) Sacks claims that it is due to a variation in the stability of the colloids of the plasm.

Anyone of these theories or all three might correct. I became very interested in applying this test in the disease of the female pelvis. As a diagnostic test, I found it of a very limited value. Only insofar as differentiating between our inflammatory disease or a solid tumor; of the pelvis for instance, a non-infective or non-disintegrating fibroid and an acute inflammatory disease of the aexae. In a solid tumor, barring all other foci of infection, there is slow sedimentation of the test, whereas, in an inflammatory disease, it is rapid, and proportionally so the degree of infection. However, as a prognostic test, particularly determining the safe time for operation, it is of inestimable value.

I have used this test for the last four years in my service at the Charity Hospital and also in my private practice, and, although it might sound to you ambiguous, but since I have used the test and have observed the advice of those workers who have particularly emphasized that no abdomen should be operated in a case of inflammatory disease of the pelvis until the sedimentation rate is

at least two hours or more, I have not had one single mortality.

I want to emphasize that that does not include, for instance, cases of emergency or barring certain unforeseen accidents. I am speaking in truly elective cases. There is no reason why in elective cases one should rush and open an abdomen.

We all know that Crossen, Müller and others have stated that—even in quiescent cases as long as three or four years—by opening an abdomen, one can stir up and cause a flare up of an old infection and patients die of a streptococci infection. Various gynecologists have differed concerning the time of a safe operability. Cherry of Harlem Hospital operates his cases when the leukocytic count is about sixteen thousand, and an afebrile period of three to five days. In a series of cases recently reported he states that he has had a mortality of a little over 4 percent.

I say a mortality of 4 percent in inflammatory diseases of the pelvis, elective operation, is too high a mortality. I just want to cite one or two cases, to show to you the value of this test. For instance, we have a young lady who had a bilateral salpingitis. She was rested about three weeks, with a normal leukocytes count, and without a rise in temperature after two bi-manual examinations, still the sedimentation test was about thirty minutes.

We made a thorough survey of the patient and could not find anything to account for the rapid sedimentation, until one day she complained of a soreness in the gum, and roentgen-ray picture showed an abscess of the first bi-cuspid and incisor. About the third day after the removal of these infected teeth the sedimentation test from thirty minutes it became about sixty minutes, and six days later one hundred and twenty-five minutes. We have operated that young lady and she has not had the slightest disturbance.

I have used the Friedlander test. In find it very practical, very easy to do. In conclusion, I want to urge upon the profession to make free use of this valuable test, practically as an aid to other methods. General physical and local examinations and other laboratory tests in order to determine the safe time of operation in inflammatory diseases of the pelvis.

Dr. J. H. Musser (New Orleans): Last summer I had the opportunity to talk to Dr. Gram, who has made some twenty-five or thirty thousand of these tests and he told me much as follows: He said that we do not know the "why and the wherefore" of the test; we do know, however, that if the sedimentation time has diminished, there is something wrong with the patient; he is speaking

as a internist. "Of course, therefore," he said, "I have found the test of greatest value in determining the individual, who really has something wrong with him, and differentiating them from the individual who is primarily a neurotic." If that is the case the tests will be of immense value, I assure you.

Dr. Foster Johns (New Orleans): May I add to this discussion, "In so far as you have a syphilitic manifestation." In uncomplicated syphilis of all types there is a normal sedimentation rate.

Dr. Joseph Cohen (New Orleans): Dr. E. Reed in one of the German periodicals reported forty cases of cervical carcinoma in which he did some blood work, and he found an increase in the sedimentation rate in almost one hundred per cent of the cases, and went on to add that after repeated tests on the sedimentation rate, if repeated tests proved to be normal, you could almost rule out carcinoma. I want to offer that for what it is worth.

Dr. E. H. Lawson: In closing, I wish to say that syphilitic and tuberculous cases which have been operated, show a sedimentation rate which is slower in recovering to normal than it is in operative cases which have not syphilis or tuberculosis. In anemias, Hubbard of the Pacific Coast has found that in both the primary and secondary type, there is a more rapid sedimentation rate than in the normal individual and has found a more rapid rate in artificially produced anemias.

HYSTERICAL HICCOUGHS WITH ASSOCIATED PHENOMENA.*

WALTER J. OTIS, M. D.,

NEW ORLEANS

Pithiatism or hysteria like Proteus has been called the champion imitator. Violent emotions obviously prepare the soil and create a predisposition for hysterical manifestations. They increase suggestibility at the expense of the critical sense and by occasionally producing actual states of slight mental comparison.

Hiccough or hiccup consists of a clonic contraction of the diaphragm. Its essential feature is a sudden inspiratory contraction of the diaphragm occurring and in conjunction with a rapid closure of the glottis; this results in an abdominal spasm,

inspiration and sudden explosion of air, consequent vibration of the completely, or partially, closed glottis and a hiccough sound which may at times assume the character of a bark.

Hiccough is a symptom which may vary in degree from a slight transitory to a severe, and at times, a grave type. The underlying cause of this affection may be a trivial disturbance amenable to the simplest treatment, or, on the other hand, it may be due to the greatest form or organic disease which, notwithstanding the most intensive and prolonged treatment, terminates in death.

The various factors which enter into the etiology of hiccoughs are the following:

1. Neurotic and unknown cause.
2. Reflex.
3. Infectious and toxic.
4. Affections of the thoracic viscera.
5. Affections of the abdominal viscera.
6. Cerebro spinal and other organic nervous diseases.

From the ushering in of our lives to the exit of same, we have all experienced at one time or another an attack of hiccoughs. In early infancy from dietetic errors, through adolescence to adult life through discretions and in later years through excesses, paroxysms of hiccoughs are met with.

In Plato's time, we read from his symposium, it was the time of Aristophanes to make a speech, but either he had eaten too much or from some other cause he had the hiccoughs and was obliged to change turns with Eryximachus, the physician. Said Eryximachus. "Let me recommend to you to hold your breath, and if after you have done so for some time the hiccoughs are no better then gargle with a little water. If it still continues tickle your nose with something and sneeze, and if you sneeze once or twice, then the most violent hiccoughs are sure to go."

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

The system was successful, so we read. Aristophanes said a little later: "The hiccough is gone; not however until I applied the sneezing—and I wonder whether harmony of the body has a love for such noises and ticklings, for I no sooner applied the tickling than I was cured."

A review of the literature reveals few cases of hysteria with hiccoughs as the predominant feature. Gordon B. New, Mayo Clinic, reports a case of post-operative hiccoughs for five months, and again we read of a case of singultus gastricus nervosus by Arthur Bassler, N. Y. Medical Journal, this condition being associated with a constitutional disorder, *i. e.*, gastro-intestinal.

There have been episodes of epidemic hiccoughs reported in various parts of the United States. Many of these cases were found to be associated with an influenzal epidemic and related to encephalitis lethargica as recorded by Gadham during 1919, 1922 and 1924 in the Winnipeg epidemic. During another epidemic, cases were seen by Martinet of Paris without apparent organic symptoms and were brought into being through the clamors of the alarmist and termed hysterical.

CASE REPORT.

The case presented today comes under the type termed neurotic and unknown cause:

A single white female patient, aged 18 years was admitted with the diagnosis of psychoneurosis hysteria. Family History: Father living and well, age 52 years. Mother living and well, age 49 years. Five sisters living and well. Three brothers living and well. No mental or nervous disorder, tuberculosis or malignancy in family history. Personal History: Pertussis when a child. Schooling to third grade. Menses at 16 years. Always regular. Never employed. Remained at home helping with household duties. Good mixer. Went about socially. Had similar attacks of present complaint for past three years and only when nervous as she terms the provocative cause. These upsets usually occur following altercations or disputes with father, whom she thinks is severe in his discipline. No data of sexual experience. No history of operation, fractures or other illness as

such. Present Illness: Began July 6, 1924, following a dispute with her father regarding going out with boys, as she terms it. She later walked to the village and had a coca cola, thinking this might stop the hiccough which continued. While at home all remedies were tried, to quote her, even to the extent of being chloroformed for periods at a time. Was finally brought to the city and admitted to hospital and placed in neuro-psychiatric ward. Date of Hospital Residence: She was directly put to bed, isolated and all energies directed to stopping hiccoughs. Various remedies, narcosis excepted, were tried without avail. All medication as such was discontinued. Suggestive therapeutics were then employed. This, as explained to the patient, was a method of procedure to aid in her recovery. The epigastrium was painted with chloroform at various times daily. To the nares and throat was applied a 10 per cent argyrol solution. This treatment was augmented by interviews at various times as to the feasibility of her recovery, when on July 21, 1924, the hiccoughs disappeared. While there was a marked weakness during the attack there was never any prostration as such. She was somewhat anxious as to the outcome of her spell as she termed it.

Following cessation of hiccoughs routine examinations were begun with the result of a basal metabolism reading of plus 22, and the findings of ova, uncinariasis americana and ascaris lumbricoides. These conditions were treated by routine measures.

Physical examination: Fairly well developed and fairly well nourished white female, slightly pale. No atrophies or assymetries. Adolescent thyroid. Heart and lungs negative for pathology. Thyroid fairly palpable. Neurological Examination: Revealed Kjs, Ajs and other reflexes equal and active. No Romberg, clonus or Babinski. Pupils equal, react to daylight and accommodation. No ptosis, exophthalmos or nystagmus. Sensations, gait and station normal. No anesthesia or paresthesia. No vaso motor instability as such. Tremors extended fingers. FFT, FNT, KHT performed with precision. Psychiatric Examination: Showed highly sensitized nervous female. Mental defective fundamentality. Marked emotional, volatile reaction content without psychosis. There was no evidence of hallucinations, delusions, illusions or ideas of reference or persecution. Progress Note: Her general morale continued to improve, and as a matter of precaution, and in an endeavor to observe whether a recurrence would take place, she remained in the hospital, was given systemic tonics with regular diet until 10/8/24 when she was discharged as recovered for the attack. Subsequent correspondence from

her, at various times since then, states there has been no recurrence.

CONCLUSION.

Within the realm of hysteria all conditions may be simulated. Continued solicitation with excessive medication in this type of case projects further the conversion, thereby obstructing possible recovery within a short time following onset of attack.

DISCUSSION.

Dr. C. S. Holbrook (New Orleans): The matter of differentiating an organic disturbance from hysteria is frequently a very serious problem, and there is no place where it is more difficult than it is in diagnosis of hysterical hiccough from hiccough due to some other disturbance; and one of the frequent cases of hiccough that we see today is that produced by encephalitis. This disease has many of the earmarks of hysteria, because there may be no other disturbances besides the protracted hiccoughs.

We are all, of course, familiar with the hiccoughs due to upper abdominal and thoracic disturbances. I am inclined to think that Dr. Otis is correct in the interpretation of this case because of one particular thing, and that is that this girl had found a way of escape from treatment that was very disagreeable to her, and she had, on two or three previous occasions, had similar attacks of hiccoughs when the home environment was not pleasant.

I further believe that this girl was probably defective as she went only to the third grade, the people at home were probably placing too much responsibility upon her. This girl had the intelligence of an eight or nine-year-old child, and she was expected to assume the responsibility of an adult. She further had a hook worm infection with some other parasite; the removing of that and the building up of her general body tone, probably also played an important part and was very much in line with the papers previously read.

These cases of hysteria, unless they do clear up quite readily at home, under comparatively simple treatment, should not be handled with the family around. Little progress can be made in curing hysteria at home, unless it is of the milder type, the more severe type should always be handled in an institution.

Dr. D. O. Willis (Leesville): I had a case of what I called hysterical hiccough, about two years ago, a bright, intelligent, vigorous young lady, about twenty years old. I searched her system in every way with all my ability, for some cause

for this, and I could find nothing except home environment.

Her mother was dead and her father married again, and there would come up home disturbances, and, as a result of this, she visited quite a good deal. They did not live in our town, but she visited there very frequently, and she had several of those attacks that I had known of through my daughter, and had been treated by other physicians.

She had one of these attacks while visiting with my daughter, after one of these home disturbances, and while in my home, the night she came, she took a very violent attack of hiccoughs. After my investigation, I decided that it was purely neurotic and I did a very harsh thing, I gave her a very strong hypodermic of apomorphin, so much that it caused her not only to empty her stomach contents entirely, but to be very sick; it made her very limp, limber, almost lifeless for hours, however, it cured the attack completely.

She had an uncle who was a physician, whom she spent a good deal of her time with in Texas. She left my house soon after recovering from this attack, and I wrote her uncle and told him what I had done, and he used this on her several times, himself. He wrote me, later, and she never had another attack as bad as the one she had at my home, after having, I think, perhaps four hypodermics of apomorphin she was cured, I think, with some other treatment suggestive and a little management in a general way.

Dr. L. L. Cazenavette (New Orleans): Attacks of hiccough, especially of the hysterical type, are at times very severe, and those of us who have seen patients under such conditions, especially when the hiccough has lasted not only hours but days can not but realize that those unfortunate patients have something serious affecting them.

While I have in the past controlled such cases by the use of suggestion enforced by electro-therapeutic measures, I think that our present views of hysterical manifestations demand a thorough analysis of the psychic and real cause of such troubles.

Dr. M. M. Collins (Hosston): I just want to mention a case which I had in France. An enlisted man had hiccoughs, I made two visits to see him and no results. Finally, I sent my sergeant down, a bright chap, to see how he was getting along. He came back, I said, "How is he?" He said, "He was pretty bad when I got there, but he is all right now." I said, "What did you give him?" He said, "I gave him two pins, I made him put the two points together and he is all right now."

Dr. E. McC. Connelly (New Orleans): I think in justice to hysteria, I would like to point out that while hysterical hiccoughs do become and are quite serious at times, that these cases that have been cited, as Dr. Holbrook mentioned, are probably the simplest reaction we have of hysteria, they were simply the patient's method of escaping from an intolerable situation, or what to them was an intolerable situation.

All hysterical phenomena and all hysterical mechanisms, however, are not quite so simple as that, and I should hate to have anyone feel that the curing of hysteria was always depending upon the suggestion of apomorphin or electricity or anything of that sort. Of course, those measures are to be used and they are frequently effective, but, as Dr. Cazenavette pointed out, it is always well to follow up our suggestions with some form of analysis, and endeavor in some way, not only to find out, yourself, what is the underlying factor, but get the patient to see it.

Dr. L. R. De Buys (New Orleans): I rise to call attention to the fact that infants oftentimes have hiccup and without any evidence of a nervous disturbance. I first wish to remark that some of you are using the term hiccough and others hiccup. Recently I had occasion to investigate the term and found that hiccup is in all the latest dictionaries. Hiccup is a symptom and in early life at least is usually indicative of some digestive conditions. Recently an investigator demonstrated in infants that when hiccup existed that there was a regurgitation of food into the oesophagus through the cardia. This explains how the taking of several swallows of water would overcome the hiccup—the water acting by gravity pushing the food back into the stomach especially when the breath was held so that the diaphragmatic message would not interfere with the water pressure.

Dr. C. S. Miller (Jackson): I did not hear all of Dr. Otis' paper, but I am very much interested in the subject of hysterical hiccough. I have not seen many cases, because usually they get over their condition before they go to the hospital, but I had one case admitted to my service in the case of a young girl who was feeble minded; she was a member of a large family, being the oldest child. It fell to her lot to look after the other children, as her mother was dead, and take care of the house work and do the cooking and everything else about the home.

She came to the hospital with a history of having had hiccoughs, lasting anywhere from two days to a week, at irregular intervals. They thought by this hiccough continuing to be present coupled with a condition of feeble mindedness, that she was a psychiatric patient and she was sent to the hospital. Nothing could be found to account for it and as soon as she was placed in

hospitalization, all symptoms of hiccoughs would disappear. So, in that particular case, her hiccough was simply hysterical reaction to avoid the enormous amount of duty and responsibility placed upon her, so that is the only case of hysterical hiccough that I have seen. I was very much interested in this subject.

Dr. W. J. Otis (New Orleans, closing): I wish to extend my appreciation to all for their general discussion of my paper. By mentioning the terms "hiccough" and "hiccup," I was conforming to local usages. While "hiccup" is the symptom of many disturbances of the metabolic economy, the type referred to was purely functional. Though psychotherapy plays a part in the treatment of these cases, in this particular case it is evident that it was the means of recovery. Never treat the nervous conditions of your patients lightly, or attempt to be facetious, otherwise, both the patient and the family will lose confidence in your ability. The question of the indiscriminate use of Apomorphia is to be condemned and I would caution against the use of same, unless one understands their pharmacology. Its action is central, the vagus will not be abused, and in cases where there is idiosyncrasy there have been unfavorable results—that is, there are cases on record where the patient has collapsed, lapsed into unconsciousness and passed into an early death. To sum up—reach in, be sympathetic and help by intelligent analysis.

THE OBSERVATION OR DISREGARD OF TRAFFIC REGULATIONS.—The public tolerates the speeding ambulance on humanitarian grounds, little realizing that the occasions on which speed is necessary are really very few. It is very hard to conceive of the necessity for speed in going to receive a patient ill with scarlet fever or any similar illness. In the delivery of any patient to a hospital the greatest needs are safety and comfort. The sole exception is in case of hemorrhage, and even in cases of hemorrhage the instances in which speed is required are very few. If hemorrhage cannot be controlled at the place of injury the chance of benefit by a reckless dash to a hospital is very slight indeed.

As our cities come of age the public begins to realize that certain spectacular practices of the past are little more than gestures. The time has come for our hospitals to take their part in the campaign for safety in our streets. Taking chances may be justified in those exceedingly rare instances in which speed is essential, but it is never justified under other conditions. Patients going to hospitals have the right to a safe, comfortable and quiet journey. Nothing else should be tolerated if the good of the patient is to be considered,—N. E. J. Med., 199:1278, 1928.

A BACTERIOLOGICAL STUDY OF THE GRAM NEGATIVE BACILLI FOUND IN FIFTY CASES OF INFECTION OF THE URINARY TRACT.*

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NEW ORLEANS.

It has long been the custom in the infections of the urinary tract to make a diagnosis of *B. coli* infection upon the finding of pus cells and gram negative bacilli with the general morphology of *B. coli* in a properly collected specimen of urine. This, of course, we usually consider to mean that the organism is either *B. coli communis* or *B. coli communior*. Appreciating the many different organisms belonging to this great colon-typhoid group and realizing that they are all practically identical in their morphology, it was thought that a careful bacteriological study of a series of these cases would be of some interest.

With this idea in mind fifty cases from the Cystoscopic Service of Charity Hospital were used for this work. It was thought that specimens from this service would give us urines from the kidney pelves and from the bladder, obtained by careful catheterization and practically eliminating the possibility of external contamination.

We selected those cases in which the urine showed pus cells and a gram negative bacillus only; if any of the pyogenic cocci were also present the case was rejected. In all of the cases more or less phagocytosis of the bacilli was noted. The cases were taken consecutively as received from the cystoscopic rooms.

The urines were first cultured in broth and then plated on endo media. Colonies were picked from these plates with special

attention being made to lactose and non-lactose fermenters and to any slight difference in appearance of the colonies present. The plants were then made on agar slants and used as working cultures. The isolated organisms were then run through the following sugar broths: dextrose, maltose, mannite, xylose, arabinose, rhamnose, sorbit, dulcitol, lactose, salicin, saccharose, raffinose, inositol dextrin, adonitol and inulin. They were grown in litmus milk and on gelatin; all were tested for indol production and the Voges-Proskauer reaction. In determining motility the organism was run through at least six generations in broth unless motility was established sooner.

Shortly before the war a committee of the Society of American Bacteriologists projected a very intensive study of the colon-typhoid group. The war delayed the completion of the task, but very important individual contributions were published by Krumwiede and Rogers; Krumwiede, Pratt and Kohn, 1916a, 1916b, 1917; Krumwiede, Kohn and Valentine, 1918; Rogers, Clark and Evans, 1914, 1915; Rogers, Clark and Lubs, 1918.

The publication of the work of Winslow, Kligler and Rothberg in 1919 presented the result of a very detailed study of the colon-typhoid group with special reference to their fermentative reactions and a revision of the literature up to 1919. They studied 160 cultures of colon-typhoid bacteria in the collection of the American Museum of Natural History. Very little can be added to or taken from their work up to this time, and we have made their masterful article a guide in the classification of the bacilli found in our series of cases.

The basis for our classification of the different species found in this series follows:

B. alcaligenes were actively motile Gram negative bacilli which failed to ferment any of the carbohydrates.

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B. morgani were actively motile Gram negative bacilli which fermented only dextrose, producing acidity and gas, also producing indol. It was differentiated from *B. shiga* which also ferments dextrose alone, but produces no gas and is indol negative.

B. typhosus was an actively motile Gram negative bacillus which fermented mannite, maltose, xylose and sorbit without the production of gas. It was differentiated from the *B. para typhosus* group as they are all gas producers. This organism was strongly agglutinated with known anti-typhoid serum.

B. para-typhosus B. and *B. enteritidis* were identical in their fermentative reactions, both fermenting dextrose, maltose, mannite, xylose, arabinose, rhamnose and sorbit with the production of acidity and gas. We classed the one as *B. para-typhosus B.* because we obtained strong agglutination with this strain and a known anti-para-typhoid *B. serum*; while with the other we failed to obtain agglutination, and, therefore, classed this strain as *B. enteritidis*. Culturally these two species are identical.

This brings us to the lactose fermenters of the group which includes *B. coli communis*, *B. coli communior*, *B. neapolitanus*, *B. lactic acid* and *B. arogenes*, all of which ferment dextrose, maltose, mannite, xylose, arabinose, rhamnose, sorbit and lactose with the production of acidity and gas. The fermentation of dulcitol was not constant for any of these species so that it was of little value in our classification.

B. coli communis was salicin positive and saccharose negative. *B. coli communior* was salicin negative and saccharose positive. *B. neapolitanus* was salicin positive and saccharose positive while *B. lactic acid* was salicin negative and saccharose negative. *B. arogenes* fermented salicin and saccharose as well as inositol and adonitol and was the only specie

of the lactose fermenters that failed to produce indol. In dextrose broth *B. arogenes* produced acetyl-methyl-carbinol (Voges-Proskauer positive) while the other species failed to do so.

B. arogenes was differentiated from *B. cloaca* by its failure to liquify gelatin. Aside from this one factor they are probably identical in their cultural characteristics.

Incidence of the different species of the colon-typhoid group in this series:

- B. coli communis*, 12 cases, 24 per cent.
- B. arogenes*, 11 cases, 22 per cent.
- B. alcaligenes*, 10 cases, 20 per cent.
- B. coli communior*, 9 cases, 18 per cent.
- B. lactic acid*, 7 cases, 14 per cent.
- B. morgani*, 2 cases, 4 per cent.
- B. neapolitanus*, 1 case, 2 per cent.
- B. typhosus*, 1 case, 2 per cent.
- B. para-typhosus B.*, 1 case, 2 per cent.
- B. enteritidis*, 1 case, 2 per cent.

There were double infections in five cases or 10 per cent of the group; two cases showed *B. coli communis* with *B. alcaligenes*, one case *B. arogenes* with *B. morgani*, one case *B. coli communior* with *B. arogenes* and one case *B. coli communior* with *B. alcaligenes*.

CONCLUSIONS.

In a careful bacteriological study of the bacilli in fifty cases of urinary tract infection showing gram negative bacilli, morphologically *B. coli*, only twenty-one cases, or 42 per cent, showed proved *B. coli communis* or *B. coli communior*. Twenty-nine cases, or 58 per cent of the series, were proved to be other species of the colon-typhoid group of bacteria.

Stock vaccines of *B. coli* in all these cases would certainly have proved of little value other than that of producing a non-specific protein reaction in over half of the cases.

REACTIONS OF THE GRAM NEGATIVE BACILLI ISOLATED FROM THE FIFTY CASES IN OUR SERIES

CASE	PATIENT	URINE FROM	SEX	DEXTROROSE	MALTOSE	MANNITE	XYLOSE	ARABINOSE	RHAMNOSE	SORBITE	DULCITE	LACTOSE	SALICIN	SACCHAROSE	RAFFINOSE	INOSITE	DEXTRIN	ADONITE	INULIN	GELATIN	LITMUS MILK	INDOL	VOGES-PROSKAUER	MOTILITY	CLASSIFICATION OF ORGANISM
1	J. C.	B	M	AG	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	sl.ac.-alk	+	—	+	B.morgani
2a	J. L.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	—	ac.coag.	—	+	—	B.arogenes
2b	J. L.	B	M	AG	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	sl.ac.-alk	+	—	+	B.morgani
3a	M. G.	RK	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	ac.coag.	—	+	—	B.arogenes
3b	M. G.	RK	F	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.colicomunis
4	C. H.	B	M	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	AG	AG	AG	AG	AG	—	—	ac.coag.	—	+	—	B.arogenes
5	A. K.	LK	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.colicomunis
6	K. J.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.colicomunis
7	F. D.	B	M	AG	AG	AG	AG	AG	AG	AG	—	AG	—	—	—	—	—	—	—	—	ac.coag.	+	—	—	B.lactic acid
8	R. B.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	ac.coag.	+	—	+	B.neapolitanus
9	L. B.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	ac.coag.	—	+	—	B.arogenes
10	C. S.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	—	ac.coag.	—	+	—	B.arogenes
11	Mrs. D.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	—	—	—	—	—	ac.coag.	+	—	+	B.coli communior
12a	W. S.	B	M	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
12b	W. S.	B	M	AG	AG	AG	AG	AG	AG	AG	—	AG	—	AG	AG	—	—	—	—	—	ac.coag.	+	—	+	B.coli communior
13	B. R.	LK	M	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
14	J. B.	B	M	A	A	A	A	—	—	A	—	—	—	—	—	—	A	—	—	—	sl.ac.-alk	—	—	+	B.typhosus
15	Mrs. A.	B	F	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	AG	AG	AG	—	AG	—	—	ac.coag.	—	+	—	B.arogenes

AG = Acid and Gas

A = Acid

— = No Reaction

REACTIONS OF THE GRAM NEGATIVE BACILLI ISOLATED FROM THE FIFTY CASES IN OUR SERIES (CONTINUED)

CASE	PATIENT	URINE FROM	SEX	DEXTROSE	MALTOSE	MANNITE	XYLOSE	ARABINOSE	RHAMNOSE	SORBITE	DULCITE	LACTOSE	SALICIN	SACCHAROSE	RAFFINOSE	INOSITE	DEXTRIN	ADONITE	INULIN	GELATIN	LITMUS MILK	INDOL	VOGES-PROSKAUER	MOTILITY	CLASSIFICATION OF ORGANISM
16	Mrs. B.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	—	—	—	—	—	ac.coag.	+	—	+	B.coli communior
17	H. R.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.lactic acid
18	T. M.	LK	M	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
19	E. B.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	—	—	—	—	—	ac.coag.	+	—	+	B.coli communior
20	Mrs. J. S.	B	F	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.coli communis
21	Mrs. N.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	—	—	—	—	—	ac.coag.	+	—	+	B.coli communior
22	E. N.	B	M	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	—	—	—	—	—	sl.ac.-alk	—	—	+	B.enteritidis
23	W. C.	RK	M	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
24	Miss W.	B	F	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	—	—	—	—	—	sl.ac.-alk	—	—	+	B.paratyphosusB.
25	L. H.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.coli communis
26	E. T.	RK	F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
27	Mrs. E. L.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.coli communis
28	Mrs. G. M.	RK	F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
29	M. B.	RK	F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
30	E. K.	B	F	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.coli communis
31	Mrs. M.H.	B	F	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.coli communis
32	A. S.	B	F	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	AG	AG	AG	AG	AG	—	—	ac.coag.	—	+	—	B.arogenes
33	A. N.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	—	—	—	—	—	—	ac.coag.	+	—	+	B.lactic acid
34	M. P.	B	M	AG	AG	AG	AG	AG	AG	AG	—	AG	—	—	—	—	—	AG	—	—	ac.coag.	+	—	+	B.lactic acid

35	A. B.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	+	—	B.arogenes
36	C. J.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	+	—	B.arogenes
37	E. D.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	—	ac.coag.	+	—	+	B.colicomunior
38	L. G.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	ac.coag.	—	—	+	B.colicomunior
39	A. C.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	B.colicomunior
40	M. L.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	B.lactic acid
41a	M. P.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	
41b	M. P.	B	M	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
42	E. P.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	B.lactic acid
43a	L. Y.	LK	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	B.colicomunior
43b	L. Y.	LK	F	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.alcaligenes
44	J. L.	B	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	ac.coag.	—	+	—	B.arogenes
45	T. W.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	B.coli communior
46	M. C.	LK	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	B.lactic acid
47	C. B.	RK	M	—	—	—	—	—	—	—	—	—	—	—	—	alk.	—	—	+	B.lactic acid
48	A. B.	RK	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	B.coli communior
49	A. D.	B	F	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	—	ac.coag.	+	—	+	B.coli communior
50	L. S.	LK	M	AG	AG	AG	AG	AG	AG	AG	AG	AG	—	AG	AG	ac.coag.	—	+	—	B.arogenes

AC = Acid and Gas
A = Acid
— = No Reaction

A = Acid

$$AC = \text{Acid and Gas}$$

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DISCUSSION.

Dr. Chaille Jamison (New Orleans): If you have never attempted work like Dr. Gondolf has reported today, you have no realization of the amount of effort it entails. I undertook a somewhat similar subject when I was interested in that work, and it gave me no results simply because I was not willing to put forth the effort. Dr. Gondolf is to be congratulated and commended on a splendid and difficult piece of work. I believe, also, that this kind of work may have a bearing on clinical medicine.

We see constantly cases of infection of the genital tract that are responsible for constitutional signs and symptoms that will be cleared up quite easily by one maneuver, when gram negative bacilli are found in the urine by certain anti-septics; others will require other action. I think the explanation lies in the different strains of colon bacilli. It would be interesting to know something about the pathogenesis of the various strains, because many of us feel clinically that positive blood cultures that show such organisms, gram negative bacilli, may have little significance. I have seen spinal trouble classed as belonging to the colon group.

I believe if this study were pursued with the idea of the pathogenetic, and the various forms of treatment to be employed it might give most valuable clinical results. Those of us who are at all familiar with the clinical work on the urinary tract know the infections due to one of this group. I can congratulate Dr. Gondolf again.

Dr. Foster Johns (New Orleans): I would like to confirm Dr. Jamison's remarks with regard to the vast amount of work that this summary of Dr. Gondolf's represents.

I have always believed that an accurate bacteriologic classification of the invading bacteria in pyelitis was most essential to treatment and prognosis. With more or less specific medicaments at their command, the urologists are beginning to insist more and more on a closer investigation of the exact varieties of bacteria present. From a prognostic viewpoint, it may be of interest to note that quite recently an exhaustive piece of work on infections of the kidney with *Bacillus fecalis* alkaligenes was done at the Mayo Clinic in which the evidence pointed toward this infection being responsible for most kidney stones. Infection with this particular organism by an extremely mild clinical course before mechanical effect of the stones becomes manifest. These clinical symptoms are easily controlled and the patient is allowed to drift along until calculi form when only operative measures or a lucky ability to pass the contractions makes possible a cure of the condition. These bacteria look like and are usually recorded as colon bacilli from a direct microscopic examination of the urine sediment. A careful bacteriologic identification early in the course of such an infection, with prompt and energetic treatment, would certainly be invaluable to the patient.

Dr. A. Mattes (New Orleans): I am quite interested in the work Dr. Gondolf has presented in regard to the classification of the bacteria found in urinary analyses. It is rather interesting to note that one of the common causes of failure from therapy can probably be attributed to our faulty conclusions in the past. We have been

taught for a number of years that practically all gram negative bacilli were coli or coli-communior and paid very little attention to further classifications.

Now, with the use of various sugar waters, and other media, as Dr. Gondolf has brought out, he has been definitely able to demonstrate not only the coli and other types of organisms in that group, but he is able to demonstrate the fact that in a fair per cent of cases we are dealing with other bacterial infections of the urinary tract. It is possible, in the majority of cases, where we fail to derive any benefit from therapy, either locally or constitutionally, it is due to the fact that we are dealing with an organism that cannot be benefitted by present-day treatment. If these cases were subjected to the extensive study that Dr. Gondolf has made, we most certainly would prove that they probably will fall into one of the groups other than bacillus coli or coli-communior.

Chairman W. H. Harris: Any further discussion? I would like to add just a word to what has been said. I believe this paper is certainly worthy of every commendation, and it is really a very suitable paper for a bacteriological meeting. I think one of the features of Dr. Gondolf's observations which is along the line we have previously recognized, is the realization that all of these organisms are inhabitants of the intestinal tract.

We know, of course, that there has been a great bit of dissertation as to the method of invasion of bacteria into the pelvis of the kidney, the direct ascending route, the matter of the bacteremia, and so on. But it will be noted that his enumeration comprises entirely intestinal flora. While the portal system is often blamed, why is it that it is so much more frequent in females and rare in males?

I think that there is a tendency on the part of bacteriologists in routine laboratory work to report right along "B" coli, and usually upon insufficient basis. I am very pleased that Dr. Gondolf has favored us with this admirable paper, because those of us who have done this work as Dr. Jamison and Dr. Johns mentioned can appreciate most fully the great amount of work carried out. As I said in the beginning, it is a rapid fire presentation of a tremendous amount of work. Is there further discussion?

Dr. N. F. Thiberge (New Orleans): The paper so far is of negative value in showing the treatment which has been ineffective, and I think Dr. Gondolf would do the section a favor if he would give us some positive information, some indication in the future as to what treatment in those cases would be available, whether he thinks a vaccine in those cases would yield better results than a stock of vaccine, and if not, what other line of treatment he would indicate.

Dr. H. J. Gondolf, New Orleans (closing): Of course, this was purely a bacteriological study and quite a bit of work would have to be done to prove the pathogenicity of these organisms; but, I feel that we have quite a bit of reason to believe they are pathogenic.

More or less recent literature has shown us that even *B. alkaligenes* has produced septicemia with prolonged periods of fever. We know that *B. lactis aerogenes* and *B. lactic acid* have produced meningitis in babies.

All these organisms are inhabitants of the intestinal tract and if *B. coli* is an inhabitant of the intestinal tract and can produce an inflammatory process in the urinary tract, I see no reason why these other organisms cannot do such a thing also.

We know that the portal circulation carries some few bacteria into the liver from the intestinal tract and I believe it was Adami who for a time believed that *B. coli* was the causative agent in cirrhosis of the liver, because he found this organism constantly in the liver. Every one of us are picking up organisms through the circulation at all times, and it merely means whether we have sufficient immunity to kill out the bacteria or whether they may produce some inflammatory process.

Now, with regard to treatment, that is more than I would attempt, but I do believe that the most of the men who treat these conditions, when they do not get results with their irrigations and their use of antiseptics, resort to vaccine therapy. Now, I think if they use stock vaccine that certainly in the majority of cases they are not going to get any specific reactions and, therefore, poor results. If you are going to resort to vaccine therapy, then I think autogenous vaccine should be the therapy of choice.

VARICOSE VEINS AND THEIR SEQUELAE.

—One hundred and sixty cases of varicose veins and their sequelae were studied by Géza de Takáts, Chicago, as to age and sex incidence. More than 1,000 injections with 50 per cent dextrose were made. An individualizing management, consisting of supportive, injection and surgical treatment or their combination is described. The histological reaction of the vein following injection has been studied. Immediate results of the various forms of treatment are tabulated. The possibility of pulmonary embolism following injection treatment and surgical treatment is discussed. The end-results of the surgical and injection treatment can be estimated only after five years. Recurrences are well known to occur after radical excisions and may be expected following the injection treatment.—*Jour. Am. Med. Assn.*, 92:775-783, 1929.

ANTIGENS AND THE PRECIPITATION TEST.*

H. W. BUTLER, M. D.,†

NEW ORLEANS.

The value of the precipitation test for the diagnosis of syphilis is everywhere recognized. There are three methods now in use for reading the reaction of this test: First, reading by transmitted light the presence or absence of small particles suspended throughout the liquid, for example the Sigma or Kahn tests; second, the reading of a cracked emulsion in which the particles have settled to the bottom of the tube, leaving a clear or semi-clear liquid above, for example the Meinicke test; third, reading made directly from the precipitation on a slide.

The principles governing the reactions are the same in all precipitation tests, so that when a technic is decided upon the antigen is modified in such a way as to be adapted to that particular method, or else the method is changed so as to be suitable to the antigen.

By the use of the Meinicke technic on a series of 500 cases, the percentage of agreement was found to be 97.5 per cent. The close agreement with the Wassermann, the simplicity of the performance of the test, and the sharp demarcation between the negative and positive reactions make the test valuable by this method. The use of an acidulated or alkalized antigen containing a gum resin flocculation indicator, as proposed by Meinicke, possesses distinct advantages over other methods of performing the precipitation test. As the horse heart extract used by Meinicke is difficult to obtain in America, I wish to present in this paper methods of adapting our standard antigens for use with this test.

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

†(From the Department of Medicine, Tulane University School of Medicine.)

MEINICKE TECHNIC.

One cubic centimeter of the horse heart antigen is measured into a 20 cc. test tube. Ten cc. of a 3 per cent saline solution is measured into a second similar tube. Both tubes are placed in the water bath at 45° C. for 5 to 10 minutes, after which the contents of the tubes are poured together twice. One cc. of this suspension, while warm, is pipetted into a test tube into which has been previously placed 0.2 cc. of blood serum, not inactivated. The tubes are shaken and allowed to stand at room temperature over night. Reading: The strong positive sera appear crystal clear with the sediment at the bottom of the tube. The moderately positive sera appear hazy with a considerable amount of sediment at the bottom. The weakly positive sera are slightly cleared with a small amount of sediment at bottom of tube. The negatives appear as when first set up, "milky," with no sediment.

TECHNIC FOR SPINAL FLUIDS USING THE HORSE HEART ANTIGEN OF MEINICKE.

One-half cc. of the emulsion, prepared as for blood sera, is pipetted into a tube containing 0.5 cc. of spinal fluid and allowed to stand over night. Strongly positive spinal fluids will settle out in the same way as the blood sera, but the microscope is necessary in most cases. A characteristic clumped precipitate appears in the positives, but the negatives show no such precipitate. Comparative results on blood sera using the Kolmer Wassermann antigen and the original Meinicke antigen showed an agreement of 97.5 per cent. Comparative results on spinal fluids using Kolmer Wassermann and original Meinicke showed 97.6 per cent agreement.

KOLMER ANTIGEN.

Kolmer's Wassermann antigen can be changed into a precipitation antigen by diluting and adding a 5 per cent tincture of tolu (made from the balsam) as an indicator.

Antigen: 5 cc. Kolmer antigen
 25 cc. Alcohol, 95 per cent.
 10 cc. Tincture of tolu, 5
 per cent.

Diluting saline: 100 cc. distilled water
 3 gms. sodium chloride

0.15 cc. of 10 per cent
 sodium hydroxide

Some antigens require more alkali than others, depending upon the concentration of lipoidal substance. Enough antigen should be added to this formula to reach the point of saturation for that particular antigen, the object being to make the suspension as unstable as possible without producing a precipitate in the negative sera. It should be added to the point just short of this amount. The more antigen that can be added, the more sensitive the reaction; and the more alkali that is added, the less sensitive it is. The correct amount of antigen is obtained by testing against negative sera. The amount ranges from 2 to 5 cc. if the Kolmer method of extraction is used. The alkali is necessary to render the ether extract portion of the antigen suitable for emulsification.

One cc. of the antigen is measured into a 20 cc. test tube, and 10 cc. of the alkaline saline measured into a second 20 cc. test tube. These are placed into the water bath at 56° for five minutes. They are then poured together twice. One cc. of this suspension is measured immediately, while still warm, into a test tube containing 0.2 cc. of blood serum which has not been inactivated. The suspension precipitates when it becomes cold, unless serum is added.

Spinal fluids: A Purdy tube is filled to the 3 cc. mark with spinal fluid. Two cc. of a saturated solution of ammonium sulphate are added and well mixed. It is allowed to stand at room temperature for 15 minutes and then centrifuged. The supernatant fluid is pipetted off, and the globulin is taken up in 0.2 cc. of negative serum. One-half cc. of the suspension as

used for blood sera is added. Strong positive spinal fluids do not require concentration of the globulin. Results obtained with blood sera were 97 per cent agreement using the Kolmer antigen both in the Wassermann and precipitation reactions.

Veal heart extraction: Fresh veal hearts, the size of a small fist, are selected and the auricles and superficial fat removed. The muscle is ground in a sausage grinder and spread on paper and dried by an electric fan. After it is completely dried, it is re-ground and extracted with ether, as follows: Four hundred cc. of ether are used to each 100 gms. of dry ground heart and allowed to act for ten minutes, shaking frequently. The ether is filtered off and 300 cc. are added three different times to the heart muscle and treated in the same manner. The heart muscle is now dried completely free from ether, and for each gram a muscle, 5 cc. of 95 per cent alcohol are added and masceration is allowed to continue for three days at room temperature, after which the alcohol is filtered off and made up to the original volume with 95 per cent alcohol.

Some of this extract is saturated with cholesterin (to 100 cc. add 0.6 gms. of cholestrin).

Veal heart extract	15 cc.
Veal heart extract, cholesterolized	15 cc.
Alcohol, 95 per cent	15 cc.
Tincture of tolu, 5 per cent	15 cc. to 20 cc.
Alcohol containing 1 per cent benzoic acid	1 cc.

Tolu varies. Add enough to the antigen to produce opacity to the test. One cc. should require 0.5 cc. of N/10 NaOH for neutralization. Phenolphthalein is used as an indicator. The pH is 4.8.

Diluent: 3 per cent saline.

One cc. of antigen is measured into a 20 cc. test tube and 10 cc. of 3 per cent saline into a second 20 cc. test tube, heating in a water bath as before at 56° two to five minutes. Heating at 56° for more

than five minutes decreases rapidly the sensitiveness of the test. Mix by pouring back and forth several times. One cc. is measure into a test tube containing 0.2 cc. of blood serum (not inactivated). Reading is made after standing over night at room temperature.

Slide test: If the slide method is desired, the antigen is diluted only three times; *i. e.*, 0.3 cc. antigen and 0.9 cc. of 3 per cent saline. A 1 cc. pipette, as short as can be obtained, is fitted with a Wright's rubber bulb. The antigen is measured into a test tube with the dry pipette, and then, with the same pipette, 0.9 of 3 per cent saline is taken up and forced into the test tube containing the antigen. The mixture is sucked back and forth several times. No heating is required. Three drops of clear serum, using a capillary pipette, are placed upon a slide and three drops of the antigen mixture are placed alongside of the serum. It is mixed with a toothpick, and the slide rocked several times to insure thorough mixing. It is then laid aside for five or ten minutes, depending upon the amount of drying that takes place. As the preparation dries, it passes through different degrees of concentration, so that at some stage the zone of inhibition will be missed and precipitation allowed to take place. The positive bloods will show the characteristic precipitation, but the negatives will remain granular. The slide method should be performed at room temperature. It is slightly more sensitive than the tube method, and the reading is more striking.

Spinal Fluids: The globulin is concentrated, using the Kahn technic as for the Kolmer antigen. It is dissolved in 0.2 cc. of normal saline or negative serum and one-half cc. of suspension is added. Strong positive spinal fluids can be read on a slide in the same way as in blood serums. Concentration is necessary in most cases.

RESULTS WITH THE VEAL, HEART, ANTIGEN AND THE KOLMER WASSERMANN SYSTEM.

Wassermann	Prescription
186 Strongly positive	Strongly positive
1 Strongly positive	Negative
1 Weakly positive	Negative
1 Negative	Strongly positive
4 Anticomplementary	Strongly positive
1 Negative	Moderately positive
9 Moderately positive	Strongly positive
10 Weakly positive	Strongly positive
10 Negative	Weakly positive
3 Weakly positive	Weakly positive
3 Strongly positive	Moderately positive
5 Moderately positive	Moderately positive
2 Strongly positive	Weakly positive
1776 Negative	Negative

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Comments: The Meinicke reaction, in its present form, is the nearest approach to the Wassermann in specificity of any of the precipitation tests, in my opinion. It is easy to perform. Two-tenths cc. of raw serum is measured into a test tube and 1 cc. of the warm antigen suspension added. The tube is shaken and allowed to remain at room temperature over night. It offers no difficulty in reading. If there is any criticism to make, it is that the horse heart extraction may be a little too sensitive. One case in a routine examination gave a moderately positive Meinicke and negative Wassermann, with no history and no clinical manifestations of syphilis. Another case, in which the spinal fluid was examined, the Wassermann and globulin were negative, the cell count 1, showed a moderately positive Meinicke. These reactions were not considered in the diagnosis. There is frequently a quantitative disagreement between the Wassermann and the precipitation reactions. A weakly positive Wassermann may give a strongly positive precipitation, and a strongly positive Wassermann may give a weakly positive precipitation. Occasionally, one reaction will be strongly positive and the other negative. Two Wassermann systems were used in checking the precipitation tests in many cases.

Conclusions: The Meinicke precipitation technic, with some variation, can be applied to any of the standard antigens. It is easy to perform and requires the minimum amount of time and laboratory facilities. Inactivation of the serum is unnecessary. There is no difficulty encountered in the interpretation of the results, which show a high degree of accuracy as compared with the Wassermann reaction.

I wish to express my deep appreciation to Dr. G. H. Hauser and the entire staff of the Pathological Department of Charity Hospital for their excellent co-operation in furnishing the bloods and for their Wassermann interpretations.

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DISCUSSION.

Dr. Foster Johns (New Orleans): The precipitation test for syphilis has come to stay, either as a check on the Wassermann or in many offices to supplant it. Dr. Butler has given us this afternoon a bare resumé of three years of constant work, and much of it original in idea, in trying to adapt our well standardized antigens to use in this test with the idea of closer correlation in the diagnoses thus made by different methods.

While he has been able to reach a fair degree of agreement in the readings of the two tests for syphilis, I doubt if we will ever be able to get a complete agreement for the following reason. Syphilis is a disease of the intercellular bridges between the cells of the vascular system. The intercellular substance is dissolved or liberated, is

absorbed into the general circulation and there acting as a foreign body, or "antigen," stimulates several different types of antibodies. One of these substances is the so-called specific amboceptor, or complement binding antibody, that we test for the presence of with the Wassermann. Another is an agglutinin which conglomerates or agglutinates the particles of a finely divided suspension of the antigen and which gives us the precipitin test. These different antibodies are produced in variable amounts and with different degrees of rapidity in different individuals.

As a rule the Wassermann reaction is somewhat more delicate and in my experience is often positive long before the precipitin reaction can be demonstrated in early syphilis. In quiescent and late syphilis, on the other hand, the precipitin test is often superior, and its findings corroborated with the spinal fluid evidence.

Of the three methods of performing the precipitin test, I can heartily agree with Dr. Butler that the Meinicke method is best. It is certainly far superior to the Kahn in my opinion in both simplicity, accuracy and workability in the everyday routine of laboratory work.

Dr. Butler's slide test and using his modification of the standard Kolmer Wassermann antigen, in my experience, is slightly less delicate than the Meinicke tube test, but as a rapidly performed check on Wassermann reactions is almost ideal.

Altogether, we owe Dr. Butler an expression of thanks for the persistence with which he has brought the precipitin test to our attention and for the great amount of thankless work that he has cheerfully performed in perfecting his method of performing the precipitin test.

Dr. W. H. Harris (New Orleans): We know in the instance of the precipitation test that the question of the particular antigen employed is of utmost importance. If we will consider its medico-legal application in the question of determining whether or not a specimen is human blood, its authenticity and value, from a legal standpoint, we realize the great degree of accuracy of such a test.

In the instance of syphilis, however, the question of the antigen is, of course, a great conundrum to the laboratory worker. The antigen for any specific disease or any specific substance is either the organism or the substance. We know that Wassermann is the preparation of his anti-

gen originally aimed at obtained the masses of spirochetes present in the tissues of the congenital lues case. It was later learned that a non-syphilitic organ would serve the same purpose. This phenomena renders it extremely hard to understand from a specific precipitation standpoint. I think Dr. Butler is to be commended on persisting in his valuable work in attempting to simplify and standardize, if possible, the Kahn test.

I would like to ask Dr. Butler if he is familiar with any work that has been carried out on the employment of a culture as a precipitinogen in this test.

Chairman J. H. Musser (New Orleans): Any further discussion? I would like to re-inforce the statement of Dr. Johns. I know this work of Dr. Butler represents the examination of not ten or hundreds of blood serums, but represents the examination of thousands. It is a tremendous piece of work, and while the applicability of it may not be apparent or entirely clear at the present time, there is no question that it represents a very great advance in the diagnosis of this interesting and extremely common disease. Dr. Butler, will you close the discussion, please?

Dr. H. W. Butler (closing): To answer Dr. Harris' question: We never have tried to make an antigen from the spirochetes themselves.

REVIEWS

WOUNDS.*

ALTON OCHSNER, M. D.†

NEW ORLEANS.

"A wound may be considered as a traumatic injury resulting in a solution of the continuity of a free or potentially free surface." (Frantz¹.) As the definition implies, a wound may occur in any part of the body, either on the external exposed surface or in some of the internal organs. It is the purpose of this discussion to consider only the wounds of the external surfaces.

Wounds may be classified according to the type of injury or according to the bacterial content.

A. CLASSIFICATION ACCORDING TO THE TYPE OF INJURY

1. *Abrasion (brush burns)*: An abrasion is characterized by the removal of the superficial layers of the skin, including part of the corium, so that a bleeding surface is exposed. Because of its superficial extent, however, the inter-papillary pegs of the germinal layer are left intact, as well as certain of the hair follicles, sweat, and sebaceous glands. Epithelium may grow from these inter-papillary pegs as well as from the edges of the wound.

2. *Incised wounds*: An incised wound is usually a linear defect produced by a sharp object passing through the skin and subcutaneous tissue. The length of the wound is greater than its breadth. It is characterized by sharp, clean-cut edges, there also being relatively little devitalization of the surrounding tissues. The amount of gaping of the wound depends upon its location and the amount of skin tension at that point. Because of the gaping of the wound, on cross section the wound is usually triangular in shape, being wider at the surface than at the bottom of the wound.

3. *Puncture wounds*: Puncture wounds are those characterized by relatively small openings and a relatively great depth. These wounds are usually produced by nails, knives, and bullets. The wounds are of especial importance, because of the danger of injuring important structures located deep in the wounds, such as vessels, nerves, and viscera, as well as the liability to develop certain deep infections, especially those of the anaerobic variety.

4. *Lacerated wounds*: A lacerated wound is one which is characterized by irregular edges and which is usually associated with considerable trauma and devitalization of the tissues surrounding the wound. These wounds are usually produced by blunt objects, broken glass, dull knives, etc.

*Presented before the Surgical Faculty, Tulane University, April 24, 1928.

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a. *Contused wounds*: A contused wound is a lacerated wound, the edges of which are irregular, but one which is associated with considerable bruising of the adjacent tissues. It is caused, almost invariably, by blunt objects, non-penetrating in character. The skin is opened virtually by rupture. The tissues adjacent to the wound are crushed and considerably devitalized.

b. *Gunshot wounds*: By this type of wound is meant the one in which there is considerable laceration, due to the explosive character of the bullet. There is a great deal of difference among the various types of gunshot wounds, depending upon the physical properties of the bullets. A steel-jacketed bullet produces a small, narrow channel in its passage through the body. If the bullet is of softer composition, however, because of the "mushrooming" effect produced, considerable more trauma and contusion is caused. In such wounds articles of clothing are especially apt to be carried into the depth of the wound. Here also, because of the deep wound, and the trauma inflicted, the danger of anaerobic infection is relatively great. Gage² has demonstrated that clothing in a wound is a possible cause of anaerobic infection.

B. CLASSIFICATION ACCORDING TO THE BACTERIAL CONTENTS

Wounds may also be classified according to their bacterial contents in the following ways:

1. *Sterile wounds*: In considering sterile wounds it must be kept in mind that in all probability no wound is ever bacteriologically sterile, so it is necessary to differentiate between bacteriologically and surgically sterile wounds. The surgically sterile wounds are referred to in this group. These wounds are those made by the surgeon with sterile instruments under aseptic precautions. They are incised wounds. The amount of trauma is minimal, as in the incised wounds above described.

2. *Contaminated wounds*: A contaminated wound is one which is made under unsterile conditions and one which contains micro-organisms, but one in which the or-

ganisms are present only as foreign bodies and are potential causes of an infected wound. Meyer³ states that anaerobic bacteria begin to grow in the tissues between the seventh and eleventh hours after the production of the wound, whereas aerobic organisms may not become established until the eighteenth to the forty-eighth hour. A contaminated wound, because of the presence of the organisms in it, may pass into the next type of wound, the infected wound.

3. *Infected wounds*: Infected wounds are those which contain micro-organisms which are growing and developing not only in the wound itself but also in the surrounding tissue. Because of this penetration into and the growth of micro-organisms in the tissues, there is a reaction between the host and the invading organisms. It may be seen that the difference between contaminated and infected wounds is principally one of time. Clinically, it has been arbitrarily taken that after 8 hours (Gaudier⁴) a contaminated wound becomes infected, which is an agreement with Meyer's findings, *i. e.*, after this period of time the micro-organisms begin to invade the tissues and are not present merely as mechanical foreign bodies.

SIGNS AND SYMPTOMS OF WOUNDS

All wounds have, more or less, the same signs and symptoms in common, which vary usually only in degree. The principal ones are pain, bleeding, and gaping of the wound.

As a rule pain is the earliest symptom and the one most frequently encountered. The degree of pain varies considerably, according to the type of wound. The pain is minimal in the incised wound and maximal in the contused and lacerated wound. The sensitiveness of the various parts of the body differ considerably. There also is a normal variation among different individuals. Wounds in inflamed areas are more painful than those in non-inflamed areas.

Hemorrhage: Hemorrhage is found in practically all wounds. There are, how-

ever, exceptions to this rule, as in a wound of the cornea, where, because of the relative avascularity, there is no hemorrhage. Hemorrhage also varies according to the type of wound. In the incised wound the hemorrhage is maximal, whereas in the contused and lacerated wound hemorrhage is relatively slight. In the latter wound the vessels are crushed and are apt to be occluded. The amount of hemorrhage may vary considerably, depending upon the size and type of the vessel injured and also the general condition of the patient. Arterial hemorrhage, recognized by its spurt-like character of bright red blood, is greater than venous. In individuals with a hemorrhagic tendency, as in hemophilia, hemorrhage is a great deal more severe than in normal persons. Wounds in those parts of the body richly supplied with blood, as the head and face, bleed more profusely than wounds elsewhere. Hemorrhage may be, and usually is, one of the most prominent signs of wounds, and is probably the most important immediate factor.

Gaping of the wound depends largely upon its location, the amount of tension present in the particular part, and the character, as well as the size, of the wound.

Shock: In cases with extensive wounds, especially those of the contused and lacerated types shock is apt to be the most important part of the clinical picture. The onset is abrupt; the patient presents all the characteristics of clinical shock; such as a rapid, easily compressible pulse; hypotension; decrease in the body temperature; cold and clammy perspiration and apathy. The exact cause of this type of shock is not known. Whether it is due to a histamine-like reaction, as the result of absorption of toxic products produced in the injured part (Dale⁵) or due to the vasodilator action produced by injury of the erythrocytes, as suggested recently by Phemister and Handy,^{6,7} is not known. It has been shown, both clinically^{8,9} and experimentally,^{10,11} that this type of shock may be prevented by placing a constrictor

on the injured member above the contused area. Shock may, however, be caused by hemorrhage. Here, however, the clinical picture is different in that the shock comes on relatively late and always follows considerable loss of blood.

SURGICAL PATHOLOGY OF VARIOUS WOUNDS

Abrasions: The exudative fluid which accumulates on the surface of an abrasion becomes coagulated very early, forming a thin covering over the wound. This clot, according to Frantz¹ is attached to the wound by fibrin strands which pass down between the cells of the underlying corium, thus keeping the clot in immediate contact with the wound. This protective covering is called a "pellicle," which term is applied as long as the clot is attached to living cells by means of unbroken fibrinous strands. Dilatation of the superficial vessels occurs as well as the migration of leukocytes to the part. The devitalized cells are destroyed by a process of autolysis and removed by phagocytosis. The epithelium, in the meantime, has begun to grow in from the edge of the wound, as well as from the deep inter-papillary projections of the germinal layer. As the epithelium grows, granulation tissue takes the place of the connective tissue and blood vessels which had been destroyed. The pellicle should be left undisturbed until its function has been served, when it becomes separated from the underlying structures by a process of autolysis, after which it is spoken of as the crust. Frantz¹ considers the function of the pellicle as protection from bacterial contamination, protection from drying of the deeper parts where repair is in progress, and a drawing together by contraction of the surrounding wound edges. If the pellicle is removed too early bleeding occurs from the capillary tufts. Frantz¹ feels that a distinction should be made clinically between the pellicle and the crust, the former being connected by fibrin strands to the living cells, whereas the latter is only adherent to the wound edges and has relatively little function.

Incised wounds: In order to understand the surgical pathology of incised wounds, it is probably desirable to consider the manner in which a clean aseptic incised wound heals, the so-called healing by first intention. Healing by first intention occurs in surgically sterile, incised wounds in which the edges have been approximated. As a result of the trauma a necrosis of the adjacent cells, even though minimal, takes place.¹ This can be seen within less than an hour after the injury. The elastic tissue and blood vessels retract from the wound. Due to the opening of the blood and lymph vessels, there is an exudation of both blood and lymph into the cavity of the wound. After about eight hours repair begins to take place in the wound. The traumatic degeneration of the cells has reached its height. The small space between the two edges of the wound is filled with a clot composed of erythrocytes, fibrin, and leukocytes.¹² At about this time a swelling of the nuclei of the connective tissue cells can be seen. Within the next 24 hours numerous mitotic figures are seen in the surface epithelium and connective tissue. Fibroblasts, together with small capillaries, pass into the clot from the wound edges. At about the end of four days the wound becomes covered with epithelium, and the clot becomes almost completely replaced by granulation tissue. By the sixth or seventh day the wound is filled with a cellular and vascular tissue. The fibrin becomes removed by the phagocytic, mononuclear leukocytes. By the end of three weeks a dense, non-vascular scar is formed, due to the deposition of collagen fibers by fibroblasts.

In wounds in which the edges have not been coaptated healing occurs by secondary intention, which does not differ materially from that of first intention. The difference between healing by first and second intention is largely one of degree. In the latter type the amount of exudate is greater and depends upon the size of the defect. The amount of granulation tissue, and, therefore, the amount of

fibrosis is greater and the time of healing is longer than in wounds which heal by primary intention. Wounds in which the edges are widely separated, so much so that there is no possibility of connecting the wound edges, heal in a more extensive way through the medium of granulation tissue. If such a wound be protected from drying, after 24 hours the edges of the skin are red and swollen. At the end of 48 hours the wound presents a jelly-like appearance, and small reddish elevations of granulation tissue are visible. From such a wound exudes a serous or purulent fluid, which is rich in serum, fibrin, leukocytes, and red blood cells. By the sixth or the seventh day the entire wound becomes filled with these pinkish elevations, of capillary loops, and fibroblasts, which have extended up to attempt to fill the defect.

During the first 24 hours there has been an increase in the size of the wound. Then, varying from a few hours to a day, it remains stationery, following which the wound rapidly decreases in size. It increases in size more rapidly for the following two or three days than subsequently. By the third to the fourth day evidence of epithelial proliferation can be seen. As the wound heals collagen fibrils become deposited with the production of the scar, over which epithelium extends. In this scar there are no evidences of sweat glands, sebaceous glands, or hair follicles. The scar, which is at first pinkish red later becomes white, probably due to avascularity. Carrell and Hartmann¹³ found that the rate of cicatrization is greater at the beginning than at the end of the period of repair. This cicatrization depends upon the size of the wound and the rate varies directly with the area. Du Nouy,¹⁴ working under Carrell's direction, showed that the rate of cicatrization of sterile wounds could be determined by means of a mathematical equation. He^{15, 16} also found that the rate of cicatrization varied with the age of the patient and the size of the wound. Carrell and Du Nouy¹⁷ found that a latent period of cicatrization existed in sterile wounds, varying from five

to seven days, after which time contraction of the wound occurred rapidly. Howes, Sooy, and Harvey¹⁸ determined the tensile strength of wounds, and concluded that the healing of wounds could be plotted by a curve. They found a lag for from four to six days followed by a phase of "fibroplasia" which rose rapidly at first, then more slowly, until after about ten to fourteen days the maximum strength of the wound is reached. Working with experimentally produced wounds Carrell¹⁹ found that if a wound were protected by a non-irritant dressing no granulation tissue formed nor any cicatrization occurred for twenty-five days at least. The applications of certain irritants locally reduced this period to two days. Carrell concludes, from these experiments, that regeneration is initiated by external and not internal factors. Brownlee²⁰ observed the rate of healing in the wounds of patients and also in experimentally produced wounds. He found that from the time of the production of the wound a certain latent period is observed in human beings and in experimental animals. This latent period usually persists for six days before the reaction appears. From this time on healing occurs at about the same rate until, after about twenty days, the rate of healing becomes very much more rapid, so that the wound is healed within a relatively short period of time. Brownlee²⁰ has been able to construct a formula demonstrating the healing of wounds. Burrows²¹ has shown that the healing of the wounds, as described above under the healing of secondary intention, may not always occur in sterile wounds or relatively non-infected wounds. He found that after the production of a wound that the wound edges would gap somewhat. After from six to twenty-four hours these edges become fixed, and then begin to move, at first slowly and then more rapidly, toward each other. The structures which tend to close the wound are the dermis, the epidermis, and a few attached fibers of the superficial fascia. This forward movement of the skin leaves a dead space between the

skin above and the deep fascia below. At this stage, no evidence of activity in the connective tissue cells can be observed. The epithelial cells are, however, very active. Following this moving forward of the skin, the connective tissue cells become active and begin to proliferate. They fill in the gap between the skin above and the deep fascia below. Burrows believes that this is the type of healing that occurs in those parts of the body where the skin is freely movable.

Girgolloff^{22, 23} divides the healing of the wounds into three stages: the first, or preparatory period, is that in which, due to the injury, the solution of the continuity of tissues and the coagulation of extravasated blood and lymph occurs. In this period two zones can be demonstrated; the one of passive destruction and the other of active regeneration. The second period begins a few hours after the first, and may be called the first stage of regeneration. It is characterized by an increase in hydrogen-ion concentration, *i. e.*, a local acidosis. This acidosis begins very suddenly, increases for 48 hours, and then gradually decreases. To this stage belongs the development of granulation tissue and the formation of precollagenous and collagenous fibers. The third period is that of true scar formation. The contraction of the scar occurs, and the wound again becomes alkaline. The collagenous fibers, as well as the elastic fibers, reach their full development.

PHYSIOLOGY OF WOUND HEALING

In addition to the above mentioned works of Brownlee, Burrows, and Girgolloff, the following comparatively recent studies are important in regard to the physiology of wound healing: Schoenbauer and Whitaker²⁴ demonstrated that the removal of the adventitia of the vessels supplying a part favored the healing of experimentally produced wounds. Rieder,²⁵ on the other hand, found that a periarterial sympathectomy produced very little change in the rate of blood flow through an extremity and, therefore, exerted little influence on wound heal-

ing. Herrmannsdorfer,²⁶ working in Sauerbruch's clinic, has shown that wounds heal better when the patient is fed an "acid diet." The foods which he believes are acid are meat, eggs, fish, butter, lard, cheese, rice, corn, bread, nuts, cocoa, meat extracts, and beer. Clark²⁷ found that diet had little effect on the contraction and epidermization of wounds. The latent period was, however, altered by diet, it being prolonged by a fat diet and practically abolished by a protein diet. Nather and Jalcowitz,²⁸ with this same idea in mind, observed a large number of patients treated with ammonium chloride internally and found that in cases of surgical infection beneficial effects could be produced by the acidosis so obtained. Gaza and Brandi,²⁹ attacking the problem in a somewhat different manner, irrigated wounds with alkaline and acid solutions. They came to the conclusion that in the acute processes, especially infections, that acid solutions were more beneficial, whereas in the chronic processes alkaline solutions gave the best results.

In the German literature there has been considerable controversy as to whether wounds, especially granulating wounds, have an electrical potentiality. In 1918 Melchior and Rahm³⁰ demonstrated an electrical current in granulating wounds. Beck,³¹ on the other hand, was unable to corroborate Melchior's and Rahm's work. Recently, Harzen and Nissniewitch³² have found that in granulation tissue originating only from the skin and subcutaneous tissue there was relatively little electrical potentiality. On the other hand, that coming from muscle has a relatively great potentiality.

As a stimulant for granulation tissue weak solutions of silver nitrate and balsam of Peru, usually in castor oil, have been used clinically with very good results. Davis^{33, 34} recommends the following as a stimulant to granulation tissue: "Clean and dry the granulations and swab the entire surface with a saturated solution of nitrate of silver; over this paint one or two

coats of tincture of iodine and expose to the air and light. Finally, dress with balsam of Peru, 1 part, castor oil, 3 parts, on old linen, and carry out this procedure each day."

In 1904 Fischer³⁵ found that ointments of scarlet red and Sudan III had a specific stimulating effect on epithelium, when injected subcutaneously in the ears of rabbits. Schmieden,³⁶ in 1908, first introduced an 8 per cent ointment of scarlet red into surgical use as an epithelial stimulant. Davis^{33, 34} has used this dye in a large series of granulating wounds and recommends its use. The stimulating action is due to the staining of the fat in the basal layer of the skin (Cone³⁷). Gurbiski³⁸ observed intoxication following the use of scarlet red in large wound infections. For this reason he warns against its use. Strauch,³⁹ on the other hand, believes that unless scarlet red is used in fresh wounds in which there is relatively little granulation tissue, where it is rapidly absorbed, and in large surfaces, the danger of absorption is relatively little. Frantz¹ states that there is no experimental proof showing that scarlet red is an epithelial stimulant, but the clinical results would seem to justify its use. If the dye is used it is best used according to the technic of Davis. The ointment is not applied over the entire wound, but is limited to the edge of the epithelium. After 48 hours this ointment is replaced by a bland ointment for 48 hours following which time the scarlet red is again applied to the epithelial edge.

TREATMENT OF WOUNDS

The treatment of wound depends primarily upon the stage, or the time at which the wound is seen, and also upon the type of wound, classified according to its bacteriological content. It is important, before undertaking the treatment of any wound, to ascertain the general condition of the patient, whether he is in shock, and to determine the amount of hemorrhage. The wound is immediately covered with a sterile dressing, and if considerable hemorrhage is present a compression bandage is

applied. If the patient is in shock, he should be treated for his shock after the hemorrhage has been arrested temporarily, before anything further is done to the wound. Following this, a careful examination of the part, *not the wound*, should be performed in order to determine whether there is any injury to either nerves or tendons. Examination of the part and not the wound is emphasized, because very frequently the possibility of a tendon, nerve, or vessel injury is not considered, and one's attention is directed only to the wound. An injury to the above mentioned structures may be completely overlooked. In contaminated wounds the possibility of the mechanical cleansing of the wound by a mechanical removal of the devitalized tissues, as well as the microscopic and macroscopic foreign bodies, including micro-organisms, is possible. This is the procedure of choice in all cases in which there is considerable devitalization of the part, as the devitalized tissue favors the development of organisms and the development of an infection. Martin⁴⁰ states that in the presence of a foreign body an infection is apt to persist. Certain organisms, especially the anaerobes, are virtually saprophytes in that they grow best in devitalized or necrotic tissue. It is absolutely imperative in all cases of contaminated wounds with injury to nerves and tendons to perform a debridement at the time of the primary nerve or tendon suture. It is also desirable in the incised wounds to do a debridement, even though the danger of an infection developing is relatively little, especially in those parts which are well supplied with the blood. The possibility or the danger of a resulting infection or scar is thus greatly minimized.

Laary,⁴¹ in 1914,[?] suggested that a debridement be done. Debridement, however, was not practiced very widely until the World War, when Gray,⁴² in 1914, in the British Army, and LeMaitre⁴³ in the French Army, began this method of treatment. Experience in the late World War demonstrated that in wounds which were properly excised, primary healing was ob-

tained in 80 per cent, whereas in those in which the debridement was incomplete there were 100 per cent failures (Maes⁴⁴). That better results might be obtained in civil surgery is self-evident. The desirability of mechanical sterilization has been emphasized by Dehelly,⁴⁵ Depage,⁴⁶ Pool,⁴⁷ and others. Of 523 wounds of the head, face, feet, and hands reported by Depage in which a debridement had been followed by primary suture there was complete success in 473 cases, or 96.3 per cent, partial success in 8 (1.6 per cent), and failure in 10 (2.1 per cent). Of 99 cases of primary suture reported by Pool, there were 93 successes and 6 failures. It is now generally agreed that a contaminated wound (one seen within 8 hours after injury) is best treated by debridement. Among war surgeons there was some controversy whether such a wound after debridement should be closed immediately or after a period of days, at which time it could be determined whether the wound was going to be infected or not. Duval,⁴⁸ in order to avoid some of the undersirable results obtained following primary suture, advocated covering the wound with sterile dressings following debridement and delaying suture until the bacterial content of the wound had been determined. He found 77 per cent of wounds debrided within the first six or seven hours after injury remained sterile under aseptic dressings. Pool⁴⁷ states that wounds of the scalp, face and hands can be closed by primary suture, whereas wounds involving the musculature of the thigh, buttocks, and calf are best treated by delayed primary suture. That better results are obtained by delayed primary suture in war wounds of the soft tissues is shown by Depage's statistics. Of 1,447 such wounds, all treated by debridement, 380 were sutured immediately, resulting in complete success in 83.9 per cent, partial success in 6.3 per cent, and failure in 29.8 per cent. Of 222 treated by late primary suture there was complete success in 93.2 per cent, partial success in 3.6 per cent, and failure in 3.2 per cent. Depage states that

primary suture should not be the rule, 1. When the lesion dates back more than 8 hours; 2. When the patient has been already subjected to previous surgical examination; 3. When the lesions involve deeply the muscular masses and when the tissues are much soiled and lacerated."

Pool believes that a primary suture is contraindicated unless the patient can be observed.

Debridement and early suture is especially indicated in compound fractures and when there is an associated tendon or nerve injury. Open fractures and injuries to joints should be closed as soon as possible. Following thorough debridement Depage believes that unless there is a minimum amount of soft parts, as in the arm and forearm, a primary suture should be done in compound fractures. In tendon and nerve injury debridement, combined with immediate suture of the divided structures, gives by far the best results.

The technic of debridement consists of excision of the wound edges and all the devitalized tissues down to healthy bleeding non-devitalized areas, under sterile precautions. The extent of the debridement should be such that active bleeding is encountered. Following the removal of the devitalized tissues, together with all foreign bodies, the instruments used to remove them are discarded and fresh, sterile ones taken. Any injury to tendons or nerves are sutured at the time. Debridement must be thorough and complete. Following this, the wound is closed in layers. All dead spaces are obliterated. A dry dressing is applied. Dehelly⁴⁵ emphasizes the following points: (1) "The closure must be as complete as possible; (2) The stitches should be without exaggerated traction; (3) Under the cutaneous suture no cavity must be left in which secretions can accumulate. The secretions accumulated in the cavity constitute a very good medium for the culture of the bacteria." In those cases in which there has been tendon injury Harmer⁴⁹ advises early institution of function. He urges immediate active motion in cases of sutured

tendons in which there is no coincident nerve injury. If no nerve suture has been done, he employs no splint. If, however, a nerve has been sutured, an appropriate splint is applied, which relieves the nerve of any tension, but still allows function of the fingers. If the functional post-operative treatment as advocated by Harmer, is to be practiced, it is essential that a satisfactory tendonorrhaphy be performed. Harmer⁵⁰ employs the following technic: "The sutures are silk and consist of overcasting the lateral margins of both ends of the divided tendon. The overcasting starts about the width of the tendon, or a little more, back from the point of division and comprises several whippings about the side of the tendon down to the line of division, each including somewhat less than one-fourth of the circumference of the tendon. When the tendon is ready to be brought together each end then carries two stitches and each edge two ends. The two parts of the tendon are now brought together and the two suture ends nearest the line of adhesion on one side are tied. The two pairs of such ends on the other side are then similarly tied. The long ends tied along the side of the tendon serve as a lateral splint."

In employing motion immediately after a tendon suture it is essential that only active motion should be allowed, and then executed only to the point of pain. Any movement in excess of this is apt to cause a tearing of the suture. Stokes and Tytler⁵¹ have demonstrated that in gunshot wounds the narrow track which has been produced by the bullet passing through an extremity without striking the bone is usually sterile. If an infection does occur, it is apt to involve the exit opening.

(To be continued)

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COME TO NEW ORLEANS.

The Annual Meeting of the Louisiana State Medical Society will start in a few days. We earnestly urge that you make every effort possible to get to this very important convocation. The Fiftieth Anniversary of the organization is to be celebrated, and it will be celebrated in a manner which will be most eventful. The meeting will be historical; it will go down in the records of the State Society as one of the greatest that has ever been held. The special efforts that are being made by the Committee of Arrangements under the able Chairmanship of Dr. Paul J. Gelpi are being made for the express purpose of making this, the Semicentennial of the

birth of the organization, a birthday celebration which will always live in the memory of the celebrants. So put aside your work for a few days; disregard the importunities of the patient; come down to New Orleans; help to make this meeting what the New Orleans doctors are determined to make it: the most successful yearly gathering in the history of the Society.

A REGISTRY FOR TECHNICIANS.

As the number of medical men proportionate to the general population has decreased the demands for certain services of medical nature have increased. The natural sequence of events is that many individuals not trained as physicians have been called to take part in medical practice. The demand is particularly in those branches of medicine where work of a more or less routine standardized nature is necessary, such as the setting up of Wassermann tubes, the making of culture-media, the developing of Roentgen films, and similar laboratory procedures. As a result of the information that has been acquired by a certain amount of technical training, in laboratories of clinical pathology and roentgenology, many men and a few women without the degree of doctor of medicine have set themselves up as qualified to conduct these types of laboratories. The abuse has grown to such an alarming extent that many measures have been taken and are being put into effect by organized medicine to control these non-medical laboratories, whose bare existence is utter absurdity. The American Society of Clinical Pathologists has taken steps not only to combat this evil, but also to elevate the status of the laboratory technicians to that of a respectable and useful calling. Their method of approach of this problem has been to organize a registry of technicians, with rules under which those qualified by education, technical instruction and moral character will receive a certificate. These technicians agree to work at all times under the supervision of a qualified physician, and shall under no circum-

stances on their own initiative render written or oral diagnosis. They shall not advise physicians in the treatment of disease or operate a laboratory without the support of a qualified physician.

The headquarters of the Registry of Technicians, the American Society of Clinical Pathologists, are located in the Metropolitan Building, Denver, Colorado. Physicians requiring technical assistance would do well to get in touch with these headquarters and to employ whenever possible an individual whose qualifications have been certified by this Society.

CHILD WELFARE EXTENSION SERVICE

The Sheppard-Towner Bill recently repealed, now recreated and brought before the House of Congress for reconsideration, has so many features objectionable to the physicians that it is difficult to understand just why there are any doctors at all who are willing to encourage this piece of pernicious legislation. The original act has been in effect for seven years, during which period of time \$12,000,000 was spent by the United States Government. The proponents of this new bill can offer no evidence of anything accomplished by this expenditure, except possibly the payment of the salaries of a few public health nurses and

bureau employees who have lived happily on the federal salary. This piece of legislation is against the interest of physicians. There is absolutely no reason for furnishing free medical services by the Federal Government any more than it should furnish a house for nothing or free fuel. Child hygiene is an integral part of general hygiene. To establish a bureau in a center like Washington, remote from many sections of the country, which will endeavor and which will attempt to control child hygiene throughout the country, is ridiculous and wanton extravagance. Government of the States and by the States should be insisted upon in matters which pertain to purely local affairs, from the standpoint of economy and freedom from centralized bureaucracy.

The whole question is essentially medical. It should not be made an economic nor a political question. The management of the bureau should not be in the hands of a lay individual, as it has been in the past, who has seen to it that the control of obstetrical facilities, of midwives, of prenatal centers is almost entirely through lay agencies. It is the height of folly to attempt, through prying and questioning busybodies, to control local medical matters from the national capital and to put in the hands of the laity important problems which have to do entirely with medical practice.

THE PROMOTION OF THE COMMON WELFARE; THE AIM OF MODERN MEDICINE.—

But it is not enough that medical science should discover, declare, and then let go. If it would fulfill its destiny and carry out its high purposes and resolves it must participate actively in the co-ordination of its own with the best offerings in religion, law, politics, ethics, and all sciences. This carries the physical beyond the confines of a strictly professional life, and he must assume and perform extra-professional duties of the most far-reaching importance. These duties are no less than those of the citizen, and it is at this point that medicine broadens its opportunities for public service. Every major interest of medicine has a merging point with the common interest,

and the physician who does not see that the mortise is accurately fashioned and the tenon well set must be responsible for the failure of the jointure. It should not be inferred, however, that the physician must devote all of his time, consecrate all of his energies and exercise his hard-bought skill exclusively for the public good. There is a secondary duty of self-interest and economic necessity which allows him to make and to store for his household, and the physician who fails in this is at a disadvantage in rendering the largest service to the public. It is less likely that the physician will fail in this instance than that all will voluntarily deprovincialize themselves and assume the habiliments of the public citizen. —Bathurst, W. R.: *South. Med. Jour.*, 22:1, 1929.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL SURGICAL STAFF.

A moving picture showing the movements of the gastro-intestinal tract was found to be of interest. The picture showed the peristaltic movements as observed in the dog, cat, and rabbit under ether anesthesia, and following stimulation of certain nerves.

Dr. E. L. King presented two very interesting specimens. The first was that of a ruptured uterus, removed from a patient who had, at a previous pregnancy, been subjected to a caesarian section. In this instance an early diagnosis was made and the patient operated on immediately. It was found that the uterus was adherent to the abdominal wall on each side of the ruptured scar. Dr. King explained that this probably saved the patient's life. It is interesting to note that the caesarian operation, mentioned above, had been one for the patient's ninth pregnancy—and for a dead fetus. At the present time Dr. King did a supravaginal hysterectomy and the patient made an uneventful recovery. Unfortunately, the baby had been dead, apparently, for several hours.

The second specimen shown by Dr. King was a caesarian section scar. The patient had a contracted (rachitic) pelvis, and she was not permitted to go into labor. This was quite a fortunate procedure, as at the operation the scar was removed and found to be nothing but endometrium and peritoneum. Dr. King ventured the opinion that one good contraction would have caused the scar to rupture.

The first case of the evening was discussed by Dr. J. A. Danna. It was that of a young colored male who had been shot in the abdomen at the lower border of the ribs on the right side, and just out on the nipple line. Operation revealed a perforation of the right lobe of the liver and laceration of the neck of the gall-bladder with a slight contusion of the second portion of the duodenum. The gall-bladder was repaired and drained. However, the patient died two days later of general peritonitis.

Dr. Danna pointed out the great difficulty encountered in dealing with this type of case. Dr. Raffagnino recalled, in his discussion, that a special committee had done much to clear up some of the difficulties met in these cases. He obtained that blood pressure readings, transfusions, etc., were all necessary parts of treatment in these cases, and may often mean the difference between life and death.

Case number two was one of pernicious vomiting of pregnancy. The patient was a white female, 27 years of age. Usual care was given; but in spite of this she aborted and developed a sub-involution of the uterus. The next day she died. Autopsy revealed a right pyonephrosis,

acute cystitis, post-abortion sub-involution, retained products of pregnancy, toxic myocarditis, hepatitis, and splenitis; and edema and congestion of the lungs.

Dr. R. L. Gordon pointed out the great necessity for the genito-urinary consultations in these cases, and expressed an opinion that cystoscopy might have helped in this case. To the writer it appeared that, in the later stages, this might have been a case of uremia; and that the vomiting persisted because of her acute genito-urinary condition. However, Dr. Hilliard Miller felt that the case was particularly one of pernicious vomiting with the genito-urinary condition a simple complication.

A white female, 37 years of age, who died following an apparently normal and easy delivery, was the basis for the next discussion. Dr. W. P. Gardiner pointed out that this was one of a small percentage of cases which are bound to die. He added that unseen and unsuspected lacerations through the cervix and into the uterine musculature may be easily overlooked. In this particular case, it must be added, the placenta did not separate; and had to be removed later manually. Dr. Kostmayer expressed his opinion that this was just a pure case of post-partal hemorrhage, as she bled quite profusely after delivery, and that it was imperative that the placenta be removed manually if any definite knowledge of the bleeding was to be obtained.

FRANK L. LORIA, M. D.

PROCEEDINGS OF THE HOTEL DIEU STAFF.

The regular monthly meeting was held February 18, 1924, Dr. J. T. Nix presiding, Dr. Lucien A. LeDoux, Secretary, at the desk.

Case presentations: 1. By Dr. P. Leonce Thibaut: Open reduction of complete dislocation of outer end of right clavicle. C. S., a white male, was injured December, 1927, while riding on ladder of freight car was struck by car going in opposite direction.

The patient was operated upon April 10, 1928, and ordered to light work June 21. Returned to regular work, switchman, January 2, 1929.

Patient was exhibited to the Staff, showing complete function re-established.

This case was discussed by Drs. M. Gelpi, J. Danna and Lucien A. Fortier.

2. Dr. Homer Dupuy and Dr. Jules Dupuy presented two cases of laryngeal stenosis, one case intubated, the other tracheotomized, and admitted to the Hotel Dieu within twenty-four hours.

Both young patients were exhibited before the Staff, and these interesting cases were discussed by Drs. J. Dupuy, Val Fuchs, J. Danna and M. Meyer.

Discussions of the deaths occurring in the hospital during the preceding month completed the scientific part of the meeting.

LUCIEN A. LEDOUX, M. D., Secretary.

FRENCH HOSPITAL.

The regular meeting of the French Hospital Staff was held on Friday, February 8, 1929, Dr. T. A. Jung presiding. Those present were: Drs. T. A. Jung, E. L. Zander, Ed. McCormac, M. Lescale, D. N. Silvermann, H. Meyer, J. N. Ane, E. N. Haller, P. Graffagnino, J. J. Baron, M. J. Lyons, W. H. Harris, R. J. Gordon, G. D. Sagera, A. M. Powe, L. L. Cazenavette, F. J. Beyt, E. J. Tucker, L. J. Menville, F. A. Planche, G. C. Anderson, S. C. Lyons.

A symposium on appendicitis was held. Dr. S. C. Lyons spoke on the Surgical Aspects of Appendicitis, stressing the following points: 1. The necessity of instructing the general public in regards to appendicitis. 2. In acute appendicitis, immediate operation gives excellent results; delayed operation disastrous results.

Dr. E. McCormac talked on Differential Diagnosis of Appendicitis in Relation to Urology. He advised the following procedure when a patient had pain: 1. That roentgen-ray pictures be made of the patient in erect and lying positions. 2. That a urinalysis be made with examination for organisms. 3. That a phthalein test be made.

Dr. D. N. Silvermann spoke on the Medical Aspect of Appendicitis. 1. The difficulty of diagnosing chronic appendicitis. 2. The continuation of gastro-intestinal symptoms following appendectomy. 3. The necessity of surgically removing the appendix when diseased.

Dr. L. J. Menville spoke of the Value to the Roentgen-ray in Diagnosing Appendicitis. 1. In locating the appendix and in determining its position. 2. In determining the aspect of the region in which the appendix is located.

Dr. W. H. Harris spoke on the Pathology of Appendicitis. He outlined the possible causes of appendicitis and the resistance of tissues, and advocated the removal of the appendix before there was an involvement of the serosa.

Dr. P. Graffagnino opened the discussion. He stressed the importance of diagnosis in appendicitis.

The floor was opened to general discussion; those taking part were: Drs. L. J. Menville, E. L. Zander, G. C. Anderson, W. H. Harris.

There being no further business the meeting adjourned.

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL STAFF MEETING.

The regular monthly meeting was held March 11, 1929. Dr. A. Street presented the first case, one of gastro-jejunal ulcer. This patient, a white

female, 54 years of age, had a gastro-enterostomy for a large duodenal ulcer two and one-half years previously. Six weeks prior to her admission to the hospital she began to have continuous abdominal pain in the right upper quadrant and lower abdomen, associated with persistent nausea, occasional vomiting, and hunger pain.

After preliminary treatment she was operated on with resection of the gastro-enterostomy opening, and at the time of the report was convalescing comfortably.

The second case was one of post-partum eclampsia, presented by Dr. G. M. Street. Because of marked general edema, hypertension and albuminuria labor was induced at eight and one-half months and a normal eight-pound female child delivered in nine hours. The following morning she had the first convulsion and one hour later a second convulsion. She was given 20 per cent magnesium sulphate solution intravenously and morphin, and then 10 per cent glucose solution intravenously. The patient made an uneventful recovery.

Dr. J. A. K. Buirchett, Jr., showed a case of compound fracture of the forearm caused by a crushing blow. The muscles of the right forearm were ruptured transversely, the skin being pulled away from the subcutaneous tissue for two-thirds of the circumference of the forearm. The wound was cleaned of crushed tissue and treated with Dakin solution and iodine. Sutures were placed in the skin and the arm placed in a plaster splint in slight flexion. A slight infection has cleared up, spongy union is beginning, and a 50 per cent result is expected.

Dr. L. J. Clark presented a case of paroxysmal tachycardia in a white female, 51 years of age. The irregularity was said to have been present at intervals since 16 years of age. The case was seen in an attack on the third day following a cholecystectomy. She had been taking digitalis. This was discontinued and sparteine sulphate, grains two, was given every three hours. In forty-eight hours the normal rhythm was resumed.

The effect of the sparteine is problematic.

A case of septic meningitis following a chronic mastoiditis was offered by Dr. H. H. Johnston. The spinal fluid showed 1456 leukocytes with 96 per cent neutrophils. Anti-meningococcus serum was used intra-spinaly and intravenously. The cultures from the spinal fluid and blood stream showed a streptococcus of the non-hemolytic type. A left mastoidectomy was done and a large abscess drained; the pus containing the same non-hemolytic streptococcus. The patient died ten hours later. Autopsy showed a cerebral heptomeningitis with a sub-dural collection of pus over the left frontal region. The left lateral sinus was thrombosed.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of March besides the regular meeting of the Board the Society held one scientific meeting and one joint clinical meeting with the Charity Hospital Staff.

At the scientific meeting the program was as follows:

"The Prevention and Control of Tuberculosis in Children," by Dr. E. A. Bertucci. Discussed by Drs. Wallace J. Durel and E. D. Fenner.

"Gastric Analysis in Congestive Heart Failure," by Dr. I. L. Robbins. Discussed by Dr. Smith.

"The Chronic Appendix from the Roentgenological Standpoint," by Dr. Adolph Henriques. Discussed by Drs. J. H. Musser, S. K. Simon, John A. Lanford, Monroe Wolf, A. Mattes and closed by Dr. Henriques.

Dr. Monroe Wolf presented a case of "Diverticulum of the Urethra."

At the Clinical Meeting held March 25 interesting cases were presented by the members. Dr. Rucker, the guest of the evening, presented "A Report of the First Case of Typhus Fever in Louisiana."

Both meetings were very well attended.

At the scientific meeting the final vote on the amendment to the By-Laws was favorably acted upon and will read as follows:

ARTICLE I.

MEMBERSHIP

Section 2. ACTIVE MEMBERS: Eligibility—Every white physician residing in the Parishes of the First and Second Congressional Districts and a graduate of a regular school of medicine or those so registered by the Louisiana State Board of Medical Examiners, is eligible to active membership, also any white physician connected with any hospital staff or teaching staff of any recognized Medical School and not actively engaged in the practice of medicine.

The second quarterly premium on group insurance will be due on April 5th and our check must be in the home office at that time. The members are urged to get their checks in the secretary's office not later than April 3rd.

The Committee on Arrangements has been working very hard for the coming meeting of the Louisiana State Medical Society. All sub-committees are working to make the meeting a most successful one.

During this past month the following doctors were elected to membership:

ACTIVE MEMBERS: Drs. J. Henry Bayon, Jr., John B. Gooch, Philip J. Saleeby and Robert F. Sharp.

INTERNE MEMBER: Dr. Ernest B. Weinfeld.

REPORT OF TREASURER

Actual Book Balance, 1/30/29.....	\$2,825.42
Receipts during February.....	1,372.75
Receipts for insurance.....	1,111.95

\$5,310.12

Expenditures 819.98

ACTUAL BOOK BALANCE.....\$4,490.14

REPORT OF LIBRARIAN

One bibliography has been added to our files during February—on Diverticulum of the Esophagus. The daily reference calls by telephone and in person have been constant.

Two hundred and seven books have been added to the Library. Of these 16 were received by purchase, 105 by gift, 46 by binding, 24 by exchange, and 16 from the New Orleans Medical and Surgical Journal.

The donors for the month are:

St. Luke's Hospital, Nebraska University College of Medicine Library, Dr. P. T. Talbot, Dr. E. L. King, Cincinnati General Hospital Library, Creighton School of Medicine Library, Dr. D. F. Montague, Grosvenor Library, Buffalo, Dr. C. Jeff Miller and Dr. J. H. Musser.

A list of new accessions of recent date is appended.

NEW BOOKS

Lawrence—Diabetic Life. 1928.

Emerson—Physician and Patient. 1929.

McClung—Microscopic Technique. 1929.

McKittrick—Diabetic Surgery. 1928.

Marriott—Recent Advances in Chemistry. 1928.

Chandler—Lipiodol in the Diagnosis of Thoracic Disease. 1928.

Michigan University—Physical Education Activities. 1928.

Kaye—Roentgenology. 1928.

Chesser—Child Health and Character. 1927.

Ogilvie—Recent Advances in Surgery. 1928.

Rutherford—The Eye. 1928.

Kendall—Bacteriology. 1928.

Chapin—Diseases of Infants and Children. 1928.

Billings—General Medicine. 1928.

Blum—Practical Diatetics. 1928.

Schamberg—Compend of Diseases of the Skin. 1928.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

TO THE MEMBERSHIP:

Our plans for the gala meeting of the Louisiana State Medical Society in New Orleans, April 9, 10 and 11, are now completed. From indications we will have a banner attendance, and with good reason because the Committee on Arrangements has an unusual program for your delectation.

We desire to call your special attention to the extraordinary program on Monday night, April 8, the day that the House of Delegates meets. Dr. Rudolph Matas will present the world renowned Canti films, and all who are able should take advantage of this unusual opportunity.

The semi-centennial celebration will be attractive in many respects. The public has been invited to this function and a very enjoyable evening is promised as orators of note will speak and an unusual artistic program will be presented.

Our stag affair on Wednesday night will be made attractive as usual, and no doubt a large number will congregate to recall memories of the past and discuss affairs of the day at the splendid repast that will be served.

The Chairman of the Ladies' Entertainment Committee has likewise prepared an elaborate program, and we hope that the wives, sisters and sweethearts of our members will join us in great numbers.

All is ready for the Golf Tournament. Our Chairman has made extensive preparations and hopes that there will be many contestants. Your attention is particularly directed to the fact that a cup now in the possession of Dr. Larry DeBuys, who won the contest in Baton Rouge last year, will again be contested for; final possession of the cup depending on three successful winnings.

Come one, come all. There will be lots of

science, lots of art, lots of pleasure, lots of play and lots of entertainment.

PAUL J. GELPI, M. D.,
Chairman, Committee on Arrangements.



LEON J. MENVILLE, President
Louisiana State Medical Society

SPECIAL ANNOUNCEMENT.

As the result of arrangement with Station WWL, Loyola University, New Orleans, the Tuesday evening jubilee program will be broadcast by remote control from the Tip Top Inn at the Roosevelt Hotel over this station.

This is the first time that any part of the state meeting has been broadcast by radio, and it is hoped that this medium will be the means of enabling many of the members who are not able to attend this meeting to listen in on the splendid program arranged for that evening.

LUCIEN A. Le-
DOUX, M. D.,
Chairman Publicity
Committee.

NOTICE TO PARISH SECRETARIES

The following parish medical societies have not sent in their officers for 1929, and they are respectfully asked to give this their prompt attention:

Acadia, Bossier, Jefferson Davis, Livingston, Rapides, St. Martin, Union, Vermilion and Washington.

President Edwin A. Alderman, University of Virginia, will deliver the principal address at the ninety-first commencement of the Medical College of Virginia, Richmond, on Tuesday, May 28, 1929.

TULANE UNIVERSITY'S BEHAVIOR CLINIC

A behavior (child-guidance) clinic has been established in connection with the school of social work of Tulane University, New Orleans. A be-

avior clinic examines a child to discover the causes of his misbehavior or mental difficulties and advises the parent or teacher as to how best to help the child to overcome them. In other words, it does for the mind of a child the same sort of service that a child-health clinic does for his body.

Assistant Surgeon F. M. Evans is relieved from duty at Quarantine Station, New Orleans, La., and assigned to duty at Quarantine Station, Rosebank, N. Y.

SPECIAL NOTICE

It was found necessary to publish some of the surgical papers read before the last meeting of the Louisiana State Medical Society without discussions. This was due to our failure to secure from the medical reporter a full copy of the discussions made. To withhold these papers from publication any longer was deemed inadvisable by the Executive Committee.

P. T. TALBOT,
Secretary.

AN ACKNOWLEDGMENT

The paragraph entitled "The Promotion of the Common Welfare; The Aim of Modern Medicine," which appeared on page 665 of the March number was written by Dr. William R. Bathurst, and was an excerpt from the President's Address delivered at Asheville and printed in the Southern Medical Association Journal of January, 1929.

PARISH MEDICAL SOCIETY OFFICERS FOR 1929

The following Parish Medical Societies have elected officers for 1929 as follows:

ST. MARY PARISH

President, Dr. A. C. Kappel, Franklin, La.
Sec.-Treasurer, Dr. T. H. Gueymard, Morgan City, La.
Delegate, Dr. C. M. Horton, Franklin, La.
Alternate, Dr. Louis Crawford, Patterson, La.

CADDO PARISH

President, Dr. J. L. Scales, Medical Arts Bldg., Shreveport.

1st Vice President, Dr. W. S. Harmon, Medical Arts Bldg., Shreveport.

2nd Vice President, Dr. D. H. Alverson, Giddens-Lane Bldg., Shreveport.

Treasurer, Dr. J. R. Stamper, Medical Arts Bldg., Shreveport.

Secretary, Dr. P. R. Gilmer, Medical Arts Bldg., Shreveport.

Delegates: W. P. Butler, M. S. Picard, J. M. Gorton, J. E. Knighton, E. L. Sanderson, Guy A. Caldwell.

Alternates: T. J. Fleming, Louis Abramson, Franke Walke, Edgar Galloway, R. G. Douglas, W. S. Kerlin.

MOREHOUSE PARISH

President, Dr. S. I. Sims, Bastrop, La.

Vice-President, Dr. E. L. Miller, Bonita, La.

Sec.-Treasurer, Dr. L. E. Larche, Bastrop, La.

Delegate, Dr. W. A. Rodgers, Bastrop, La.

Alternate, Dr. R. B. Leavell, Bastrop, La.

IBERVILLE PARISH

President, Dr. R. R. Grant, Plaquemine, La.

Vice-President, Dr. R. D. Martinez, Plaquemine, La.

Sec.-Treasurer, Dr. W. E. Barker, Jr., Plaquemine, La.

Delegate, Dr. W. G. Owen, White Castle, La.

Alternate, Dr. G. A. Darcantel, White Castle, La.

MEETING OF ST. TAMMANY PARISH MEDICAL SOCIETY

The regular monthly meeting was held at the Southern Hotel, Friday night, March 8, at 8 o'clock. Members present were L. Roland Young, H. E. Gautreaux, W. L. Stevenson, H. D. Bulloch and J. F. Buquoi. Lawrence R. Young was a guest and A. L. Magruder an invited essayist of the evening.

In addition to regular order of business, etc., H. E. Gautreaux, M. D., and A. L. Magruder, dentist, entertained with papers, the former having as his subject, "Obstetrics," the latter, "Pyorrhea." These were very much enjoyed and there was much said on both. The Doctor stressed the seriousness of child bearing and the skill that should attend it. The dentist ably detailed pyorrhea and brought forward the pitiful data that only twenty-five per cent was seen early enough to entirely eradicate and layed stress on its prevention stating that it should be handled by both the doctor and the dentist as it was both a constitutional and local disease.

L. ROLAND YOUNG, M. D.,
President and Acting Secretary,
St. Tammany Parish Medical Society

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

TO THE MEMBERS OF THE LOUISIANA STATE MEDICAL SOCIETY

The Mississippi State Medical Association is indeed glad to have the opportunity and the privilege to extend to its neighbor and sister association, the Louisiana State Medical Society, its hearty good wishes and congratulations on its golden anniversary. We sincerely hope that its scientific achievements and its work for the public good will continue to be known among medical men for years and years to come and that the spirit of fraternalism which has existed between our two societies may be maintained throughout the existence of both.

Doctor J. W. Barkley who had two months training at the Public Health Training School at Indianola, Mississippi, last year has been elected full-time director of the Tishomingo County Health Department.

Dr. J. W. Dugger succeeded Dr. R. S. Curry as Factory Inspector on March 1.

Dr. Mark F. Boyd of the Rockefeller Foundation has been employed by the Mississippi State Board of Health as Director of the Division of Malaria Investigation and Control. Doctor Boyd has had experience in this work in many parts of the world.

Mr. George Parker, who has been in charge of Malaria Control Work for the Mississippi State Board of Health, has tendered his resignation effective March 25 to engage in local industry of a manufacturing nature. Mr. Parker has given seven years faithful service to the Mississippi State Board of Health and his resignation was the cause of genuine regret to all those with whom he had been associated in the work.

A forty foot extension is being made to the brick building in the rear of the Old Capitol. This building is used by the Board of Health for the manufacture of biologics. This addition to the building will give enlarged and improved facilities for the manufacture of typhoid vaccine, anti-rabic treatments, silver nitrate solution, and other biologics prepared and distributed by the Mississippi State Board of Health.

TO THE MEMBERS OF THE COUNCIL:

Are you bearing in mind your responsibility in maintaining and perfecting the organization of the Association?

Have you made your official visits to your component societies? Have you called on your local secretaries for the rosters of members, and checked up last year's membership? Have you a list of physicians in your district who are not members of the Association? An extra letter from you will do much to supplement the local secretaries' efforts in keeping up membership and in bringing in new members.

Gulfport is making preparations for a great meeting, and we want a record attendance. Let nothing prevent your attendance. Bring your "better half." Tell her she owes it to herself to make at least one visit to the "Play-ground of the South." Elaborate preparations are being made to make this a most enjoyable occasion for the ladies, and we would like to see a large attendance.

Drop me a note telling me how things are going in your district, and assuring me that we shall have the pleasure of seeing you at Gulfport, May 14-15-16.

Cordially,

D. J. WILLIAMS,
Chairman Council.

Jackson, Miss.,
March 11, 1929.

To the Ex-Presidents,
Mississippi State Medical Association.

Gentlemen:

This is to remind you that the next State Meeting is almost at hand. Gulfport is an ideal place to spend a few days vacation, and the boys down there are preparing to give us one of the best meetings in the history of the Association. Make your plans to attend, and let nothing prevent you.

The Ex-Presidents' Club is the "aristocracy" of the Association, and the annual reunion is one of its best features. The Club dinner last year was the most interesting event of the meeting for me.

You remember Dr. Rowland's challenge to meet each of you each year for the next ten years. The record had just been read showing that he had missed only two meetings of the Association

in forty-five years. That is the spirit of loyalty that should illumine the path of the younger members and exalt the office of president of the Association.

Let us show the boys that we are still very much alive by attending the meetings and taking an active part in the affairs of the Association.

A later letter and program will be sent you. This is just to remind you that we are counting on you and want you to make your plans to be present at Gulport on May 14-15-16.

Cordially,

(Signed) D. W. JONES, Secty.,
Ex-Presidents' Club.

The Fifth Councillors District has been having District Meetings. The first was held at Jackson with the Central Medical Society as host and the Warren County Doctors as essayists.

The next meeting was held at Vicksburg, the Warren County Society acting as host and the Central furnished the program.

These meetings were characterized by the high quality of the papers presented, the spirited discussions, and the cordial spirit of fraternalism that prevailed. The several members of the two societies became more intimately acquainted, and both local societies were doubtless helped. The plan is recommended to other societies.

(Signed) D. W. JONES,
Councillor.

INTERSTATE POST-GRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA

This organization announces its American Spring Assemblies from April 15 to May 9, 1929, and European Assemblies from May 18 to July 11, 1929. The officers of the Assemblies are:

President: Dr. John B. Deaver, Philadelphia, Pennsylvania.

President of Clinics: Dr. Charles H. Mayo, Rochester, Minn.

Chairman of Program Committee: Dr. Geo. W. Crile, Cleveland, Ohio.

Managing-Director: Dr. W. B. Peck, Freeport, Illinois.

This year clinics will be visited at Rochester, Minnesota, April 15-16; at Chicago, April 17-19; at Cleveland, April 20-22; Boston, April 23-25; at New Haven, April 26; at New York, April 27-

May 1st; at Philadelphia, May 2-3; at Baltimore, May 4-6, and at Washington, May 7-8.

The European Assemblies will visit the following clinics:

May 18—Sail from New York.

May 2 —Arrive at Southampton.

May 27-29—In London.

May 30—Visit English Lakes on way to Glasgow.

May 31, June 1—Glasgow, Scotland.

June 2—Visit to Trossachs on way to Edinburgh.

June 3-4—Edinburgh, Scotland.

June 5—By boat to Bergen, Norway.

June 7-9—Oslo, Norway.

June 11-13—Stockholm and Upsala, Sweden.

June 14—Lund, Sweden.

June 15—To Copenhagen, Denmark.

June 16-18—Copenhagen, Denmark.

June 20-21—Hamburg, Germany.

June 22-24—Berlin, Germany.

June 26-27—Frankfort, Germany.

June 29-July 2—Paris, France.

July 3—Sail from Cherbourg.

July 11—Arrive in New York.

Dr. J. S. Moore of Magnolia died on February 17, 1929, of cardiac disease. His sudden death was naturally a shock to his many friends.

The Journal extends its sympathies to the bereaved family.

Dr. E. P. Dempsey of Potts Camp, Mississippi, is at the Oxford Hospital for surgical treatment.

The April meeting of the North Mississippi Six Counties Medical Society will be held in Oxford.

At a recent meeting of the DeSoto County Medical Society the following officers were elected for the year:

President, J. M. Wright, Hernando.

Vice-President, J. A. Rhodes, Horn Lake.

Secretary-Treasurer, L. L. Minor, Memphis.

Delegate to State Association, L. L. Minor, Memphis.

Alternate Delegate, A. J. Weissinger, Hernando.

Censors: A. L. Emerson, A. V. Richmond, W. S. Weissinger.

The regular quarterly meeting of the North-East Mississippi Thirteen Counties Medical Society, March 19, was held in Okolona, Mississippi.

Their program was as follows:

1. "Mediastinal Abscess Following Injuries to Neck"—E. Q. Withers, Columbus.
2. "Pyosalpinx Complicating Labor"—D. C. Spalding, West Point.
3. "Earache in Children"—Eugene Rosamond, Memphis.
4. "Some of Our Professional and Associational Needs"—W. H. Frizell, President, Mississippi State Medical Association.
5. "Report of Some Unusual Cases"—R. D. Kirk, Jr.

The East Mississippi Medical Society met in Newton February 21. The program was as follows:

1. "The Management of Pneumonia of Infants and Children"—F. G. Riley, Meridian.
2. "The Indications for Operations in Acute Mastoiditis"—Robin Harris, Jackson.
3. "Dental Infection and Diagnosis"—J. M. Brown, Newton.
4. "Epidermophytoses"—R. W. Hall, Jackson.
5. "Angina Pectoris and Coronary Thrombosis"—T. D. Boudreaux, Meridian.

DIAGNOSIS OF EARLY UTERINE CANCER.

—Emil Novak, Baltimore, stresses the fact that simple pelvic examination is not sufficient in making the diagnosis in many cancer cases. The physician should, in all suspicious cases, see that cancer is ruled out. This will mean biopsy in suspicious lesions of the cervix, diagnostic curettage in suspicious bleeding from the uterus. If early cancer of the cervix is found, the patient has at least a fifty-fifty chance for cure. If early adenocarcinoma of the uterus is found, her chances of cure should be about two out of three. Any physician can diagnose late cancer, but physicians should familiarize themselves with the clinical appearance of early cancer and of cervical lesions that are to be regarded with suspicion. Even if proved benign, such lesions are important predisposing causes of cervical cancer, and their correction, usually very easy, does much to protect

The regular monthly meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held in Vicksburg March 12.

By invitation of Drs. Knox, Parsons and Sanderson, the Society visited the new Vicksburg Hospital and enjoyed a clinic session.

A paper was read by Dr. M. H. Bell.

The Staff Meeting of the Vicksburg Sanitarium was held March 11 with the following program:

1. "Gastro-Jejunal Ulcer"—Dr. A. Street.
2. "Postpartum Eclampsia"—Dr. G. M. Street.
3. "Compound Fracture of the Forearm"—Dr. J. A. K. Birchett, Jr.
4. "Paroxysmal Tachycardia"—Dr. L. J. Clark.
5. "Septic Meningitis Following Chronic Mastoiditis"—Dr. H. H. Johnson.
6. "Coagulation and Bleeding Time"—Dr. E. H. Jones.
7. "Generalized Melanoblastomatosis"—Dr. L. S. Lippincott.
8. Demonstration of Selected Radiographic Studies:
 - (1) Calcification of Abdominal Aorta.
 - (2) Carcinoma of the Stomach.
 - (3) Suppurative Pleurisy.
 - (4) Pulmonary Tuberculosis.
 - (5) Maxillary Sinusitis.

the patient from cancer. The danger of biopsy, if any exists, is far more than counterbalanced by the life-saving information it often yields. There is no other way of making the diagnosis in the early stages of the disease. The same statement may be made with regard to diagnostic curettage in suspicious bleeding of intra-uterine origin. Neither biopsy nor diagnostic curettage is of unqualified value, however, unless combined with competent pathologic examination. The ideal is, of course, that the surgeon himself should be a good pathologist. Although there is much discussion of the bearing on cancer mortality of such factors as the method of treatment and the histologic classification of the tumor, the fact still remains that the most important single factor is the duration of the disease. Hence the basic importance of biopsy and diagnostic curettage which are essential in the recognition of the really early stage.—J. A. M. A., March 16, 1929.

BOOK REVIEWS

Extra Ocular Muscles: By Luther C. Peter, A. M., M. D., Sc. D. Philadelphia, Lea & Febiger. 1927. pp. 294.

This volume is a worthy successor to the author's excellent book on Perimetry. A difficult subject is discussed in a complete yet simple manner by one of our foremost teachers in ophthalmology. No book has been written on this subject in recent years which from the viewpoint of the American ophthalmologist is its equal.

The anatomy and physiology of the extra ocular muscles one must learn and forget at least six times to properly understand. The excellent illustrations and the lucid text make this as painless as possible.

Until recently, our treatment of the phorias reminds one of Mark Twain's comment on the weather, that everyone talked a lot, but no one seemed to do much about it. Dr. Peter has helped take the hit and miss from a subject, which has been more missed than hit and whose treatment has been guided largely by the fads and fancies of various exponents, rather than by common sense and intelligent understanding.

From the patient's standpoint, routine post cycloplegic testing prior to prescribing glasses hardly seems entirely justified, even in exophoria. Generally speaking, the first step in restoring ocular comfort to patients with slight phorias consists in making the eyes practically emmetropic. This in the vast majority can be accomplished only by the intelligent use of cycloplegia, especially where astigmatism is present. The change of a cylinder, axis or amount known to be correct under cycloplegia because it does not exactly meet a patient's fancy, hardly seems good judgment, often prolongs incapacity and delays recovery.

The subjective symptoms caused by the various phorias are in reality only fatigue reactions. This fundamental fact and deep truth could have been emphasized in greater detail. We must not lose sight of the fact that a person's general fatigue, which is largely dependent upon well being and living habits, often influences the restoration of ocular comfort as much as our local treatment with appropriate glasses or medicine.

The author's discussion of the tropias and paralytic squint is one of the sanest contributions on this subject that I have ever read. The absence of "hobbies" has a strong appeal. Endorsement of sight re-education and fusion training especially after operations should encourage our intelligent continuance of this treatment, which most of us have from time to time neglected.

The complete table of contents and index facilitate one's knowing what one knows, which after all is one of the most difficult problems of the physician twenty years after graduation.

Dr. Peter is to be congratulated upon this excellent volume and encouraged in contributing ophthalmic publications because ophthalmology needs more books of the quality he has written.

CHAS. A. BAHN, M. D.

Angina Pectoris: The Anatomy, Physiology and Surgical Treatment: By Walter B. Coffery, Philip King Brown and John Davis Humber. New Orleans, A. J. Dickerson. 1927. p. 393.

This monograph, produced in excellent style by the Tulane University Press, contains an outstanding feature extensive anatomical studies, great numbers of the most careful and painstaking dissections of the cervical sympathetic nervous system by Humber. The fine photographs and line drawings of these specimens are beautifully reproduced in half-tone profusely illustrating the section and constitute an unusual atlas of this surgically important system. This contribution is distinctly valuable. The book is made up in its first half from what appear to be separate essays on, for the most part, the surgical aspects of this interesting and important condition. Though the section are related, they are not intimately welded together and one gets the impression of a series of reprintings of articles on the same subject rather than of a single effort carefully blended. There is discussion of the physiology, the diagnosis of the condition, the medical treatment and the surgical treatment with especial emphasis on the method of Coffery and Brown. Case reports are given in great numbers and at great and apparently too great length at times, with the inclusion of many unimportant facts which suggest careless editing and unfortunately give the impression of padding. From the surgical standpoint the work reflects the opinions and convictions of the authors in extenso somewhat at the expense of those of other neurosympathetic surgeons. This is of course authors' license in a monograph. The medical treatment seems to the internist to be unfairly discriminated against for medical methods were apparently rarely given thorough trial in the authors' cases before surgical intervention was undertaken. The electrocardiographic discussion is inadequate. The electrocardiographs on page 126 are upside down. The sequence of case-grouping is difficult to follow and understand in rapid survey of a reviewer.

The directions for the surgical procedure are extensive and will no doubt appeal to the surgeon who has only an infrequent opportunity to undertake sympathectomy. The excellent illustrations of the anatomy of the region will be invaluable to the seasoned as well as the occasional operator in this important field.

GEORGE R. HERMANN, M. D.

Roentgenology: Its Early History, Some Basic Physical Principles and the Protective Measures: By G. W. Kaye, O. B. E., M. A. D. Sc. New York, Paul B. Hoeber, Inc. 1928. pp. 157.

Every roentgenologist in this country know of Dr. Kaye and the great work he has done for radiology. His latest book, *Roentgenology*, will be in great demand. In this book consideration is given to the history and physics of roentgenology as well as the various protective measures employed in the best roentgen laboratories. Several very interesting historical illustrations and a number of charts appertaining to the physics of the roentgen-ray are to be found in this book. All users of the roentgen-ray will find this little book both interesting and educational.

LEON J. MENVILLE, M. D.

A Compend of Diseases of the Skin: By Jay Frank Schamberg, A. B., M. M. Philadelphia, P. Blakiston's Son & Co. 1928. pp. 324.

The eighth edition of this very fine little volume, contains all the good of previous editions and has added quite a review of syphilis, especially of the nervous system.

This is the book I like to recommend for the class room and ready reference in the practitioner's office. It is complete yet compact.

M. T. VAN STUDDIFORD, M. D.

The Diabetic Life: Its Control by Diet and Insulin. A Concise Practical Manual for Practitioners and Patients. By R. D. Lawrence, M. A., M. D., M. R. C. P. (London). 4th ed. Philadelphia, P. Blakiston's Son & Co. 1928. pp. 188.

There are many things of very great interest suggested in this little book and a doctor who wishes a brief, accurate and authentic review and guide will find it here. The book, however, is much too technical for the average run of patients. The Line-ration scheme is ingenious but in the opinion of the reviewer no easier to teach patients than the straight calculation of the diet.

I. I. LEMANN, M. D.

Recent Advances in Surgery: By W. Heneage Ogilvie, M. A., M. D., M.Ch., Oxon., F. R. C. S. Eng. Philadelphia, P. Blakiston's Sons & Co. 1928. pp. 461.

A good resume of recent progress in surgical fields. The volume compares favorably with a similar work edited by Graham, entitled *Year-Book of Surgery*. It is a good and convenient reference book.

SHIRLEY C. LYONS, M. D.

The Kahn Test: By R. L. Kahn, M. S., Sc.D. Baltimore, The Williams and Wilkins Co. 1928. pp. 201.

This work consists of an explanation of the phenomena of precipitation in syphilis with reference to the Kahn reaction, with remarks concerning the choice of apparatus, reagents, and standardization of antigen. The author also discusses the various reactions obtained with the Kahn test and their clinical interpretation. The technique for procedures with spinal fluid and the micro and special procedures are also given.

The volume deals entirely with the technique and interpretation of the Kahn test and is an excellent reference for anyone choosing to use this test.

EDWIN H. LAWSON, M. D.

Syphilis: By Charles C. Dennie, B. S., M. D., New York, Harper & Brothers. 1928. pp. 304.

This little book cites the personal views of the Author as expressed in the "Foreword." It is a very nice compend on syphilis but is lacking in details and illustrations. The table of contents is fairly complete but there is no index in the back of the book which adds to its inconvenience as a reference.

MONROE WOLF, M. D.

Medical Department of the United States Army in the World War: By Maj. Albert S. Bowen, M. C. Vol. IV. Washington, U. S. Government Printing Office. 1928. pp. 494.

The fourth volume of this enormous history of the Medical Department of the World War has to deal with the mobilization camps and ports of embarkation, and of the activities in these several important departments under the control of the medical corps. This volume has been compiled with the same careful attention to details and to minutiae as the other volumes that have already appeared.

J. H. MUSSER, M. D.

Clinical Examination of the Nervous System.

By G. H. Monrad-Krohn, M. D., F. R. C. P.; with a foreword by T. Grainger Stewart, M. D., F. R. C. P. 4th ed. New York, Paul B. Hoeber, 1928. pp 209.

This book is just what it purports to be, a manual for the clinical examination of neurological patients. The author has undoubtedly achieved his purpose, and presents a work which will be of great value to neurological beginners and to students. It will enable them to systematize their neurological examinations and make them more complete and thorough. The material that he gives can, of course, be obtained from other works, but here it is condensed and in such a form as to be instantly available for use. Furthermore he describes many details as to the technique of eliciting signs and making tests, which should be extremely useful and of great assistance to anyone taking up neurology.

E. MCC. CONNELLY, M. D.

A Handbook for the Diabetic: By Albert H. Rowe, B. S., M. S., M. D. New York, Oxford University Press, 1928. pp. 129.

Another of the numerous guides for the diabetic patient and his physician. This one is very plainly written though it contains, as do most of the primers in the opinion of the reviewer, too many details for the average patient. On the other hand, any physician who will take this little book and digest its contents should be able to handle adequately the diabetic patients who come to him. There are a number of pieces of detailed advice as to arrangement of the diet and the administration of the insulin which will prove of value to the doctor. This book is recommended to him as one of the dependable and easily understood primers.

I. I. LEMANN, M. D.

A Handbook of Clinical Chemical Pathology: By Frank Scott Fowweather, M. D., M.Sc., D. P. H. (Liverpool), F. I. C., with foreword by Sir Berkeley Moynihan, Philadelphia. P. Blakiston's Son & Co. 1929. pp. 216.

This little book fills a great need in medicine as there is nothing quite like it in medical literature, despite the fact that the information it contains is continually sought for. Here it is gathered up and discussed, rather superficially, it is true, but with sufficient detail for the man who seeks such facts as it contains. A brief and succinct chapter is devoted to such phases of chemical pathology as acid-base balance of the blood, renal function tests, liver function tests, examination of the cerebro-spinal fluid, basal

metabolism, anoxemia, together with vitamins and deficiency diseases, as well as some nine other chapters devoted to somewhat less important and less frequently sought after subjects. The book should prove of great value to the clinician or any medical man is not actively carrying out laboratory procedures, but who is anxious to know the why and the wherefore and the results.

J. H. MUSSER, M. D.

The Adrenals: Their Physiology, Pathology and Diseases: By Max A. Goldzieher, M. D. New York. The Macmillan Co. 1929. pp. 426.

A monographic description of the adrenal glands including their normal and pathological morphology and function, the interpretation of morphological changes and functional disturbances and their relation to clinical medicine. In clinical medicine today very little attention is paid to adrenal disturbances. Practically speaking, the only item of adrenal pathology which is taken into consideration by the average physician is that of complete adrenal insufficiency, leading to Addison's disease. This volume is an attempt to demonstrate that quite definite conclusions can be drawn in order to establish several other syndromes, besides Addison's disease, which are by no means as rare and unimportant as generally considered. Furthermore, in various syndromes which are brought about by the impairment of other organs than the adrenals, the latter also play a secondary role, which deserves attention both from a diagnostic and therapeutic point of view.

The book opens with a chapter on the development of the adrenals. There is a striking parallelism between the ontogenesis and phylogenesis of cortex and medulla. At first there is complete separation of the two systems: fish stage; next, close contact of the two tissues: amphibia stage; then the intermingling of the two components: bird stage; and eventually the complete inclusion of the phaeochrome tissue by the interrenal element and formation of a unified organ: mammal stage.

The third chapter of something over a hundred pages, deals with the physiology of the adrenals. The effects of adrenalectomy are reviewed, attention being called to such things as the striking loss of weight, pulmonary over-ventilation, the decrease of alveolar CO₂, decrease in blood alkali reserve, rise in temperature, nitrogen and sulphate metabolism, etc. The specific effect of adrenalin on the heart, the intestines, uterus, the eye, the bronchus, muscular fatigue, glandular organs, the blood, metabolism (gaseous, salt,

carbohydrate), are discussed as well as the effects of drugs, the influence of the pancreas and of other endocrine correlations.

Although the demonstration of cholin in extracts of the adrenal cortex and in its efferent veins might suggest the possibility of this substance being the sole and only active principle, a survey of its properties shows that it can not account for all of the manifold effects of the physiological function of the cortex or for those of its pathological dysfunction. Some preliminary work by the author, attempting to demonstrate the presence of another active substance (interrenin) is here referred to.

Chapters 4 and 5 deal with the pathological anatomy and the patho-physiology of the glands. The last chapter, refreshingly short, discusses the general principles of adrenal organotherapy.

The book is well illustrated, there being 72 microphotographs most of which illustrate the chapter on pathological anatomy. The bibliography occupies 97 pages. A perusal of the book will repay the clinician as well as the more physiologically inclined and one closes it with the feeling that the adrenals have many quite important functions and correlations.

HENRY LAURENS, Ph.D.

National Health Series: What Every One Should Know About Eyes: By F. Park Lewis, M. D. *Care of the Mouth and Teeth,* by Harvey J. Burkhart, D. D. S. *Diabetes and Its Treatment,* by Frederick M. Allen, M. D. New York, Funk & Wagnalls Company. 1928.

Three little booklets written by well known authorities on their subjects, carefully prepared for the laity. They are desirable and well worth while for the person interested in personal hygiene.

J. H. MUSSER, M. D.

Practical Medicine Series—General Medicine—Series 1928: Ed. by George H. Weaver, M. D., and others. Chicago, Year Book publishers. 1928. pp. 832.

The practical medicine series has been in existence too long to require any introduction to the medical public. The reviewer has watched, with particular interest, the development of the volume on general medicine during the past thirteen years. Much credit is due to its editors for its present high standard. While it is manifestly impossible to review and abstract all the valuable articles that have appeared in internal medicine during the past year in a comparatively small volume, much good judgment in selection has been shown throughout the book. Papers of outstanding merit are reproduced, at times, in toto. Here and there editor's notes are inscribed endorsing

or disagreeing with conclusions reached by authors of papers. This adds a personal touch to the book which enhances its value and interest. The reviewer can highly recommend this volume to the busy practitioner who is desirous of keeping up with the recent literature in general medicine.

RANDOLPH LYONS, M. D.

PUBLICATIONS RECEIVED.

P. Blakiston's Son & Company, Philadelphia: *Recent Advances in Obstetrics and Gynecology,* by Aleck W. Bourne, B. A., M. D. B. Sch. (Camb.), F. R. C. S. (Eng.). *The Diagnostics and Treatment of Tropical Diseases,* by E. R. Stitt, A. B., Ph.G., M. D., Sc.D., LL.D. *Recent Advances in Neurology,* by W. Russell Brain, M. A., D. M. (Oxon.), M. R. C. P. (London).

D. Appleton and Company, New York and London: *Proctology,* by Frank C. Yeomans, A. B., M. D., F. A. C. S.

Paul B. Hoeber, New York: *Imperative Traumatic Surgery,* by C. R. G. Forrester, M. D., F. A. C. S.

Bruce Publishing Company, Saint Paul: *Modern Roentgen-ray Technic,* by Ed. C. Jerman.

MacMillan Company, New York: *Getting Ready to be a Mother,* by Carolyn Conant Van Blarcom, R. N. *Diseases of the Liver, Gall Bladder and Bile Ducts,* by Sir Humphry Rolleston, Bart., K. C. B. and John William McNee, D. S. O., M. D., D.Sc., F. R. C. P.

Lea & Feibiger, Philadelphia: *Diseases of the Gall Bladder and Bile Ducts,* by Evarts Ambrose Graham, A. B. M. D., Warren Henry Cole, B. S., M. D., Glover H. Copher, A. B., M. D. and Sherwood Moore, M. D. *Acute Infectious Diseases,* by Jay Frank Schamberg, A. B., M. D., and John A. Kolmer, M.Sc., M. D., Dr. P. H., D.Sc., LL.D.

Funk & Wagnalls Company, New York and London: *Diabetes and Its Treatment,* by Frederick M. Allen, M. D. *Care of the Mouth and Teeth,* by Harvey J. Burkhart, D. D. S., LL.D. *What Every One Should Know About Eyes,* by F. Park Lewis, M. D., F. A. C. S.

U. S. Government Printing Office, Washington, D. C.: *The Medical Department of the United States Army in the World War. Volume IV. Activities Concerning Mobilization Camp and Ports of Embarkation,* by Maj. Albert S. Bowen, M. C.

Williams & Wilkins Company, Baltimore: *Practical Clinical Laboratory Diagnosis,* by Chas. C. Bass, M. D. and Foster M. Johns, M. D.

Reprints: *Studies on Hookworm, Ascaris, and Trichuris in Panama,* by W. W. Cort, N. R. Stoll, W. C. Sweet, W. A. Riley and Louis Schapiro A. *Series of Reprints from the Director, Geneeskundig Laboratorium, Weltevreden (Java) Dutch East India.*

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THE NEW ERA IN GENERAL SURGERY.*

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BOONEVILLE, MISS.

For the last decade general surgery has been on the mat before the multiplied specialists, and the battle has been keen for the survival of the fittest. Surgery became so highly specialized that the specialist had plenty of time to sell his one article to the consumer and he depended upon making a long profit on a few sales, rather than on volume of business. The specialist specialized in doing the simplest thing in the hardest way at the greatest possible cost, and in fact measured his success by the enormity of the fee he was able to collect. Enticed by the real success and service of the true specialist, and lured by the artistic salesmanship of the near fake, specialists sprang up over week-ends, and they became very numerous and very highly specialized. The story goes: a man who had a limited acquaintance in the city, called the only orthopedic surgeon he knew when his car was wrecked and his wife got a leg broken, to come at once—and the specialist asked “which leg,” and he replied “the right,” whereupon the specialist said, “I am sorry, but you will have to call another doctor,” “I specialize on the left.” And at a social function of some formality, an infatuated young lady suavely asked a young man “and what is your profession?” “I am a Naval surgeon.” “My, it is remarkable the extent

you surgeons carry your specialty nowadays.”

The smoke of battle is clearing away. The real specialists have won by making general surgery a specialty. The confines of general surgery have become more definitely defined, and the general surgeon is striving to become more efficient within his confines. General surgery becoming a specialty, marks a new era in this field, but there is even more than this taking place. For a while it was very discouraging and looked like the general man would be entirely rejected by the specialists, but now he is becoming the corner stone for all surgery. This should be encouraging to us, as our own Mississippi of farms and small towns is especially adapted to general surgery. We now have within our confines some of the most brilliant general surgeons in the nation, only their work has not been done on the stage under the high-powered spotlight.

In general surgery it is much harder for a man to qualify. He is like an assembly man for a new car. It is easy enough to find a man who can put on a wheel or a windshield, or tighten the brakes, but when it comes to getting all the parts in the right relation, so the machine will last and won't rattle, it is different. The general surgeon must needs be a man of broad mind, versatile, and thoroughly educated. He must know when special surgery is indicated, and must be fair enough with the patient and his client to recommend the specialist when his invaluable services are needed.

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

General surgery in the new era will be constructive, conservative and preventive. The patient's life is and will always be the greatest consideration of the general surgeon, but saving the life and adding years to it is not enough now, volume of life must be added also. There was a time when two to four days was considered ample time to operate on a case of appendicitis, and in many instances even if the patient lived he was handicapped with adhesions, or rupture or maybe a weakened heart muscle from the toxins. But in this the new era the average case can be diagnosed in five to ten minutes, and constructive surgery looks down the line of efficiency and the case is operated within six hours of the onset. Instead of waiting to cure a bad case of gonorrhea or soft chancre fortified behind a prepuce a yard long to do a circumcision, it will be done when the baby is from five to seven days old. Instead of waiting ten to twenty years for the nerve lines to be burnt out and the entire human organisms brought down below par from a bad laceration of the perineum, the general surgeon must take an active part in obstetrics, at least to the extent of being closely affiliated in a cooperative way with the general practitioner, and all lacerations will be repaired at the time of child birth. Under surgical conditions the healing results are practically as good, the post-operative pain is much less, the scar tissue is reduced, and hence that patient can stand another pregnancy with less danger of injury, and many aches and much nervous energy are prevented and conserved. The general surgeon should take time and be paid for it to inform and educate the people to have surgery done when the cure is more certain and the efficient results are greater. An operation for hernia is simple in the beginning in the average case, the cure is complete, and the percentage of recurrence is low; but the possibilities of the neglected case are not pleasant to think upon. The wearer of a truss has his physical efficiency reduced, his mental morale is not always up to par, and as he goes about his daily work he is sitting

over dire and dynamic possibilities. The rupture becomes larger, scar tissue forms, the pre-disposition to appendicitis is great, to strangulation and intestinal obstruction is still greater; then if the patient is saved the physical efficiency in a big per cent of the cases is lowered, and dangerous possibilities still exist, and an added aggravation in the form of adhesion ever remains as a Job's comforter.

In the new era, conservative surgery is and will be in vogue. Conservative surgery has made greater strides in the pelvis perhaps than in any other field. Up until six or eight years ago ovaries, tubes and uteri were sacrificed at the least provocation. Gonorrheal infection gave rise to a big part of pelvic surgery. Much of this was not constructive surgery. It was destructive, leaving the patient less fit and many lives were actually lost. In this field of surgery conservatism and education has been a great step forward. Only a few years ago the gall bladder in the higher circles of general surgery, scarcely escaped any more than did the appendix. It was nearly always bad if no other outstanding cause could be found for the symptoms. It seems now that the gall bladder is held for only a small part of the offense. In ulcer of the stomach and intestine, at last the patient is given rest and a sensible diet and focal infections are removed before quite so much major surgery is done in the form of resections and gastroenterostomies. The indications are that within two or three years the radical operation of the breast will be passing out as has the destructive and often fatal Wertheim. Total hysterectomy is scarcely even indicated now-a-days. Radium is the treatment of choice in carcinoma of the cervix, and even with a fibroid uterus and a lacerated and everted cervix, it is usually advisable to leave the portion that anchors the ligaments and contains the most abundant blood supply. In tuberculosis of the kidney conservatism is again gaining ground. Another marked and commendable form of conservatism is seen in what we might call the field of relief sur-

gery, as in advanced cancer of the breast, cervix, back of tongue, et al. The surgeon now does and must study his patient from top to bottom and determine by the most accurate facts he can obtain and by his best process of reasoning whether or not the patient will survive the operation and what will be the status of that patient a few months later. If the odds are against the patient, then the operation is left off and relief is sought by other means if it can be. This is a great saving to the patient, usually pleasing to the relatives and the surgeon should be commended. The ideal is to so diagnose and sum up the latent powers of the patient that when an operation is done, the patient will always survive it. When it comes to removing foci of infection radicalism is the most conservative many times. The work of Rosenow of the Mayo Clinic on focal infections has not yet been estimated in its great importance. So the man who is radical in removing foci of infection may be the most conservative in reducing and preventing surgery.

Up to the time of Pasteur, medical progress was slow. We gained some ground by trial and observation. Since the Pasteur age, we have had a basis for curative and preventive medicine. For fifty years curative medicine received the greatest attention. We are now in the age of preventive medicine. It promises great advancement now that the conflict between the practitioner and public health officer has practically vanished. The staunchest friends now to preventive medicine is and will be the general practitioner. As yet preventive surgery has received but little attention. It will though. It must. And the general surgeon is to be the champion in this new field. If he is successful he will be called the most blessed of all. But the question is asked "How can you prevent an operation when you do not know the cause. Can you by taking thought prevent appendicitis?" If we think hard enough in the right direction maybe we can. It seems that some people and some nations are more susceptible to it than others.

Hence we have the problem of heredity, climate and mode of living. There is also a strong probability that focal infections play an important role in the production of appendicitis as well as ulcer of the stomach, intestines and gall bladder infection. So by the help of the nose and throat specialist and the dentist, many more serious operations might be prevented. It is very probable that hook worm infection may predispose to appendicitis and any patient who has ever set foot on sandy land in the South should not go unexamined.

Good obstetrics without doubt may prevent much surgery. And how may this be obtained? Chief among all by being more sparing with pituritin, and waiting a little longer to use forceps, by confining more patients in the hospital and using gas or chloroform at the time of delivery, are some of the ways.

In the entire field of surgery there is one example after another where a little surgery in time may save a big operation later. In carcinoma of the cervix or cancer of the breast this is thrice true.

In the field of traumatic surgery it has been found that in automobile wrecks the greater part of the damage has been due to shattered glass, hence the "non-shatterable" windshield.

And there is the ill-fitting shoe that gives rise to bunions, pain, discomfort, bad temper, expensive operations. Here is an opportunity for preventive surgery.

But as in the field of preventive medicine, preventive surgery calls for special training, for annual, bi-annual and sometimes monthly examinations. The surgeon must be paid for his prophylactic advice. The general public must catch the spirit of the new era. How is it all to be brought about? I don't know. I am asking you to think along this line, to do your part to educate your clientele. The laity must be educated to its importance. The profession will have to furnish some of the facts to the lay press and solicit its help.

The public is not educated to the importance of early operation, much less prophylactic surgery. There are hundreds of people who are prejudiced against operations and hence will not have them regardless of the price. There are thousands who would have them earlier, but feel unable financially, and must be driven to it because of inability to work. Some people think that an operation costs too much, too many don't pay anything regardless of what they are charged. The people think the doctors are getting rich by exorbitant prices. The doctor knows it is not so, and feels like quite a per cent of the laity has been taught to fear God and beat their "doctor bill". Doctors give away more of their time and services than any other profession. So we have a big field for new and constructive thought. It is a problem for the entire profession and for the entire people.

The general surgeon, especially in Mississippi, whose field of endeavor looked as though it would be confiscated by the specialist, has become the corner stone in the new era in surgery. He must have special talents and special training. He must not under-estimate the value of the specialist, and he must be very closely affiliated with the general practitioner. He must be a man who has enough knowledge of the specialties to know when to direct his clients to them and he should have had training as a general practitioner. This training no doubt accounts for the great number of successful general surgeons in this association.

The general surgeons will rise to the level of the new demands and do their part. But other agencies must cooperate. Chief among those are our medical schools. They must get a vision of the work before us and must train the men to do it. The most of them have been educating away from the field of general surgery rather than to it. In Mississippi the great field that is white unto harvest in general surgery is in the small town. The medical schools have been too prone to employ the super-technical man who would starve to death

in general practice and he proceeds to cram down the student his memorized theories and speaks always in terms of big hospitals, interns, nurses and orderlies and straight way mis-educates the graduates to the city, to the bright lights, to the specialties. The general surgeon needs to put in at least one month out of each year studying in school, not simply wisely looking on. The college professor needs just as much to put in a month in Sullivan Hollow in general practice or doing surgery in the small hospital on Vinegar Bend.

The state, the social economist, and the philanthropist must lend a helping hand. I would not spend any less to get rid of the ticks in Mississippi, but I would spend more if necessary to establish small hospitals throughout the State of Mississippi and give more aid to the general practitioner and to the general surgeon in carrying out his high and laudable ideals and promoting his efficiency in the practice of curative, of constructive, of conservative, of preventive surgery, thereby making life longer and broader and stronger, and relieving pain and distress, and leaving instead, happiness and prosperity.

TREATMENT AND PREVENTION OF SCARLET FEVER BY SPECIFIC ANTITOXINS AND SERUMS—The paper by John A. Toomey, Cleveland, is a review of the literature and an analysis of Cleveland data. He calls attention to the fact that in most papers, the statistics of mortality are general and are usually bare of explanation. The reasons patients die are very important and should be considered, and the more considered, the less obvious are the beneficial results of antitoxin since it may be that hospital patients have such admission handicaps that nothing could save them. From Jan. 1, 1922, to Aug. 1, 1926, 2,058 scarlet fever cases were admitted to the Cleveland City Hospital. Sixty-five patients, or 3.1 per cent, died. Thirteen of these were admitted within forty-eight hours after the onset of their symptoms and only three of these were toxic uncomplicated types. Six of these patients had complications, such as burns, and, curiously enough, four were given scarlet fever antitoxin within twenty-four hours of the onset. When the case fatalities are analyzed, it is difficult to see just how antitoxin would prevent death and cut down the mortality rate. All types of reactions occurred—early thermic responses, thermic responses with urticaria and edema, late urticaria and an anaphylactoid phenomenon with three deaths due to or hastened by antitoxin. In most of the treated cases there was far more illness from the effects of serum sickness than from the scarlet fever. Is it worth while, then, asks Toomey, to inject all patients in the face of the mildness of the present type of scarlet fever, just to see them better a day or two sooner and have serum sickness, or would it be better to leave them alone and take our chances on the average course of the disease? He believes that the ultimate fate of antitoxin therapy will be settled only in an epidemic with a high mortality rate. Although Toomey has not been much impressed with the value of antitoxin either in treatment or in prophylaxis, he is extremely enthusiastic about the results he has obtained by the active immunization of susceptible patients in the manner and according to the methods advocated by the Dicks. This routine procedure has practically eradicated scarlet fever among the resident population of Cleveland hospitals.—*Jour. Am. Med. Assn.*, 91: 1599-1603, 1928.

THE BETTER PHYSICIAN*

E. B. FRENCH, M. D.,

McComb, Miss.

I want to thank you for the honor you have shown me, and assure you of the pleasure and benefit it has been to me to have served you this year. (That remark is just as true as it is trite.) You have not been benefitted as much as I, for I have been more forcefully impressed with the benefit and necessity of organization work, therefore, I am a better member of this Society.

There is nothing new in this paper, and nothing deep, naturally, but I am going to take the liberty of reiterating some of the fundamental facts and principles with which we are all imbued though they are often overlooked in the course of a busy routine.

First, of course, the patient is the prime consideration and our business is to get him well. Let's start off with the Golden Rule, reverse the situation and ask ourselves what we would do or what we would have done for ourselves under the same conditions. Remember that when we have a sick body we also have a sick mind. They both need treatment, calling for both the art and science of medicine. Art is directed towards the sick mind, science to the sick body; being conscience of the power of mind over matter.

We probably don't apply the *art* enough, and charlatans use it too much, neglecting science. There's a happy medium between the two.

Confidence that the physician inspires is part of the art. What he actually combats physically is done by science.

COMPARISON:

ART	SCIENCE
Has a method	Has a system
Looks to function	Looks to structure
Acts, is unconscious	Speaking, is conscious
Uses one eye	Uses the other eye

*Presidential Address, read before the Tri-County Medical Society, December 11, 1928.

Wisdom in medicine uses both eyes getting a stereoscopic view: discerns solidity as well as surface, and seeing both sides uses mind and body for the cure of the one man. One eye is philosophic and observant; one theoretic and one practical; one seeing the invisible and one the visible. This constitutes the double vision of the practical man. We need good common sense in everything and uncommonly good sense in medicine.

If luck has dealt a good hand play it well, if not, play the poorer hand for all it is worth.

We as physicians should know *human* nature as well as our profession. And be mindful always of *nature's* effort to cure disease. Hippocrates first realized and taught this. To assist her when she's right and coerce her when she's wrong. Study to determine the point where nature ends and medicine must begin in the cure of disease. One needs a grain of medicine and an ounce of wisdom, the other an ounce of medicine and a grain of wisdom.

Prof. Nathnagel says: "Only a good man can be a good doctor." I want to ask, Why are doctors not good to each other? Is it because of sensitiveness and easily wounded feelings if a patient has a preference for the other man? There's no accounting for tastes in the selection of a doctor any more than there is in the selection of a wife or husband. We are too "*big*" to be "*little*" to each other. Nothing is gained by antagonism but much is gained through harmony.

In this connection I want to express my regret at the apparent passing of professional ethics; it is being relegated to the past along with Southern Chivalry. We see it yet in the bigger men, and in charity cases.

Is it because we are getting too commercial and eager for the dollar? I'm saying nothing against collecting for what

we do. We should and must collect closely in order to pay promptly, that is a duty to ourselves and families, but we also have a duty to our confreres individually and to the profession at large. Mention has been made of our duty to the patient and in this connection lets ask ourselves if we observe that principle when we attempt things we are not prepared or trained to do, doing excellent things badly and bad things excellently. Let's not be averse to consultation. A confrere is "big company" when you are in deep water, if the two can work together, (give and take.) Otherwise, it is better to work alone for responsibility is shifted and not divided.

A shortcoming we too often have is failure to make a sufficiently thorough examination. Proper examination has a two-fold purpose: the psychic effect on the patient, the information we gain from it. Failure in this is not fulfilling our duty to the patient. We get in bad, and get the profession in bad too. Somebody else will check us up, give a different opinion and treatment, and probably get results.

Since we must have our differences of opinion lets not air them too much. Look at the disrepute alienists have gotten their branch of medicine into.

Lets remember, when working on diseased bodies that they are all inhabited by minds that have variable emotions, normal and abnormal, generally abnormal. The sick, unless their sensibilities are blunted by disease, are the most sensitive and selfish of mankind. We must attempt, in a measure, to fathom each patient's mind, discover its peculiarities and direct our efforts in harmony with it. Let hope, expectation, contentment and that mysterious and powerful force called faith, and other psychological agents be our constant aids, for they may each exercise legitimate power, and may each impart the greatest amount of benefit to the sick, and confiding comfort to those around. Coleridge considered him the best physician who in-

spired most hope. Hope creates ideas, generates new expedients, brings up useful reflection and leads to fresh endeavors. Every sick man is our half brother and every sick woman our half sister.

There are two kinds of legitimate reputation physicians may acquire: a popular one with the people and a higher or professional one with his confreres. Proper desire for both keeps us well balanced. We make our living by means of the one; we keep ur standard high by means of the other. Seek to enhance the profession in public esteem and defend fellow physicians and the profession when either is unjustly assailed. Failure to defend the reputation of an absent brother when justice demands you to speak is not only ignoble but implies a quasi-sanction of the libel, and a broken reputation is like broken china: you may mend it but it always leaves a scar.

Most of us belong to one of two classes: "Unsuccessful, full of learning, this one dies of want of bread; if successful, full of earning, this one dies of work instead." This is another case wherein the middle ground is the place of choice, or we find ourselves in that array of doctors who never get bread till they have no teeth to eat it.

We can guarantee nothing except that we know our duty and will do it; if the patient will do his best we will do ours and await results. The practice of medicine is not an exact science nor is life a definite quantity. All between the cradle and the grave is uncertain. Every case presents a chain of probabilities surrounded by a circle of possibilities, hence the uncertainties with which we must deal, and the loop-holes needed in prognoses.

"Wisdom is the sunlight of the soul", and there is perpetual delight in the possession of knowledge—but what we don't know is a great pity.

In closing, I want to present this paragraph from Richard Steele:

"Tradition is not a fetish to be prayed to, but a useful record of experiences. Time should bring improvement, but not all old things are worthless. We are served by both the moderns and the ancients. The balanced man is he who clings to the best in the old, and appropriates the desirable in the new."

FOOD CONTAMINATION.*

D. G. RAFFERTY, M. D.,

PASS CHRISTIAN, MISS.

Among the dangers we pass through blithely three times a day is that of food contamination. These dangers can be traced in most cases to either someone forgetting to do something or someone doing something wrongly, from the source of our food supply to the table. In other words, the human equation plays a great part in the contamination of our food stuffs. Fifty years ago our knowledge of how food became contaminated was both meager and unscientific. Contrasted with our knowledge of today this branch of preventive medicine has shown a healthy progress. Witness a wise government supervising food stuffs through federal, state, county and city agencies. With your permission I shall tell you briefly the story of food contamination and some of its results as it appears today.

HISTORY.

Problems of the preservation of food stuffs have occupied the human race from earliest times. The housewife of 5,000 years ago was as much concerned in the preservation of meat, milk and grains as the housewife of today. The ancient housewife was more concerned, however, in the prevention of waste, whereas the modern one is concerned not only with waste but also with the prevention of many diseases of which she is cognizant. While contaminated food stuffs had been under suspicion for a long time as producing

disease, it remained for Gartner to definitely establish the fact. In 1888 he found a bacillus in association with a meat poisoning epidemic. He named it the bacillus enteritidis. A cow sick with diarrhea had been slaughtered and the meat sold for food. Of the persons eating the meat 57 became ill. As a result of this study Gartner opened up a new genus of micro-organisms, known as the Salmonella group. Of this Group, comprising some nineteen organisms, we shall hear more of later.

INCIDENCE OF ILLNESS RESULTING FROM CONTAMINATED FOOD.

Despite the rigid supervision of today disease conditions still arise from the use of contaminated foods. Illnesses occur more frequently than is generally supposed. It is difficult to obtain reliable data as to the frequency of its occurrence. Contaminated food produces many mild cases of poisoning. Symptoms of nausea, vomiting or diarrhea subside without treatment. Cases of this nature are never reported, therefore we have no reliable statistics on the subject. When groups of individuals fall sick shortly after eating, such as soldiers, sailors, or picnickers, it is a different matter. Great publicity is given to the incident by the newspapers and investigation of suspected food is promptly under way. This is a sort of locking the stable-door after the horse is out.

SEASONAL INFLUENCE.

Food stuffs of all kinds become contaminated more readily in the hot months than at any other season. Flies, insects and dust aid in bringing about putrefactive processes. In homes without refrigerators we find a high morbidity from the ingestion of contaminated foods.

PREDISPOSITION AS A FACTOR.

Children, debilitated persons and the aged are more susceptible to the effects of eating a contaminated food than other classes of individuals. Children have been known to become desperately ill from the ingestion of a contaminated article of diet

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

when adults partaking of the same food escaped entirely.

ETIOLOGY.

Exciting causes:

(1) Articles of diet contaminated with bacteria or other micro-organisms.

(2) Poisonous plants mistaken for edible varieties and poisonous milk due to cows eating certain plants.

(3) Parasites, ingestion of the ova of *taenia solium* or *saginata* and the ovoid capsules of the trichinae.

MANIFESTATIONS AFTER INGESTION.

The ingestion of a contaminated food may manifest itself in the following ways: Food poisoning, food intoxication and food-borne infection. By food poisoning is meant the condition resulting from the ingestion of animal or vegetable foods contaminated with bacteria or other micro-organisms. It may include the toxic symptoms following the use of an adulterated food. Food intoxication means the toxic symptoms following the ingestion of a food containing chemical poisons or toxins originating from bacterial action outside the body. The term food-borne infection means illness resulting from the ingestion of food contaminated with organisms causing infectious diseases, as typhoid fever, scarlet fever, diphtheria, etc. It must be remembered that sharp lines of distinction between food poisonings and food intoxications cannot be drawn always, both factors may be operative at the same time.

FOOD STUFFS MOST FREQUENTLY CONTAMINATED.

It is entirely possible for any article of diet to become contaminated, thereby causing symptoms of varying degree of distress. Certain foods, however, are more prone to contamination than others. The food stuffs under the greatest suspicion are: meats of all kinds, fish, oysters, shell-fish, milk and its derivatives, such as ice-cream and cheese. Canned goods have been incriminated many times in the past. The canned product of today is more than

reasonably safe if certain simple precautions are taken.

While specific organisms are responsible for the greater number of food poisoning cases, poisonous plants are to be considered. The roots of the water hemlock (*cicuta maculata*) are very poisonous and are sometimes mistaken for horse-radish, artichokes or parsnips. Deaths are reported yearly from this cause. The average man knows the danger of mistaking the poisonous toadstool from the mushroom yet deaths continue to be recorded from this cause. The toadstool contains the powerful poison muscarine, giving symptoms similar to acute yellow atrophy of the liver. Jordan reports that in a ten-day period in September, 1911, twenty-two persons were killed from mushroom poisoning in the vicinity of New York. Of importance, too, are poisons which animals take through feeding on poisonous plants. Meadow saffron, while not injurious to the animals themselves, makes their milk poisonous, producing in children the so-called cholera infantum, a disease of which diarrhea is the chief symptom. Poisoning through milk may also occur from the deadly nightshade (atropin), Christmas rose (veratrin), hogsbin (hyoscamin), and thorn-apple (atropin and hyoscamin). These substances appearing in animals milk are the cause of considerable sickness.

CONTAMINATION OF FOOD BY PARASITES.

Food stuffs are not contaminated with the ova of the *taenia solium* or *saginata* as frequently today as in the past. Proper preparation of food by thorough cooking has greatly reduced these infestations. The same can be said of the ovoid capsules of the trichinae.

GENERAL SYMPTOMS.

The tragedies resulting from the ingestion of poisonous foods differ in degree. It may mean the momentary vomiting of an infant to the death of an adult in a space of ten hours. The factors determining the degree of illness are: the susceptibility of the individual, the type of in-

fection and the quantity of pathogenic germs or toxins taken into the system. If a number of persons partake of the same food, some may not be affected at all, others may develop mild symptoms while still others may be seriously or even fatally poisoned.

The onset of symptoms is usually from three to ten hours after eating. In some cases, however, the symptoms may be delayed from twenty-four to forty-eight hours. Sometimes we see vomiting occurring shortly after the ingestion of contaminated food. In cases where vomiting and diarrhea occur immediately or shortly after eating, the outlook is better for the patient as he has greatly relieved the alimentary tract of toxigenic material.

In mild cases of food poisoning, we find headaches, dizziness, nausea, vomiting, diarrhea or constipation and sometimes cramps in the abdomen. Temperature is absent and but little alteration in the pulse is noted. These mild cases usually subside in twenty-four hours time.

The moderately severe cases of food poisoning differs not only in the degree of the above named symptoms but also in the fact that we find temperature and alteration of pulse rate in a pronounced form. Abdominal pain and tenderness may be very distressing. Dysenteric stools and prostration characterize this type. The duration of the temperature is from two to three days.

In severe cases the picture changes. Here we see not only a violent gastro-enteritis but also evidences of profound shock. Vomiting is continuous and later on becomes blood-stained from retching. Diarrhea is severe and accompanied with tenesmus. Profuse bloody discharges from the bowels soon intervene. In the severe toxic type the temperature may be subnormal. In most cases the temperature reaches from 103 to 105 degrees F. The pulse-rate is from 120 to 180. These patients show evidences of pronounced

dehydration and in fatal cases delirium or stupor precedes death.

DIAGNOSIS.

The diagnosis of food poisoning, where groups of individuals become ill after partaking of the same meal, offers little difficulty. In fact, the diagnosis is made in many instances for the physician under whose care these cases fall. I recall a mild outbreak of food poisoning on the U. S. S. destroyer Breck five years ago. Thirty-six men out of fifty-five were taken sick one half to one hour after partaking of the same meal. They were convinced that a hash made of meat and potatoes had poisoned them, although it was never proven.

On the other hand, to make a diagnosis of food poisoning in a single case where others have eaten the same meal, is very difficult. Food poisoning symptoms stimulate grave intra-abdominal conditions such as appendicitis, perforated gastric ulcer, gall stones, etc., also intra-thoracic lesions as angina pectoris with pain referred to the epigastrium. Intra-abdominal and intra-thoracic diseases must be excluded definitely before food poisoning can be considered.

One of the fallacies that formerly occupied an important place in medical folklore was the so-called ptomaine poisoning. Selim, an Italian chemist, first introduced this term to designate certain toxic substances resulting from the processes of decomposition and disintegration of albuminous materials. As ptomaines are chiefly developed during late putrification they have been termed putriferous alkaloids. A food contaminated with a ptomaine would be so putrid and stinking that there is little likelihood of human consumption. While the term ptomaine poisoning has been popularized it should be abandoned. It means as much to the physician as the term acute indigestion, which is exactly nothing. Newspapers continue to report sudden deaths from this cause, whereas, if the truth were known, the real

cause, no doubt, would have been found in the abdomen or chest. Public health officials should reject ptomaine poisoning as a cause of death.

PATHOLOGY.

In fatal cases where the suspected cause of death is due to the ingestion of contaminated food we should demand an autopsy. The reported autopsy findings are in accord—namely, acute inflammatory lesions of the stomach and intestines. The mucosa is red and swollen and is covered with thick mucus. Blood may be found throughout the gastro-intestinal tract either free or punctate spots of hemorrhage. Under the microscope degenerative changes are found such as cloudy swelling with disintegration of the epithelium and glands.

MEAT POISONING.

The meat of very young animals should never be eaten. The sale of young or "bob veal" is prohibited by law. It is indigestible, innutritious, and decomposes very quickly after slaughter. High game is meat that has been exposed to the air for a period of several days. It becomes contaminated with putrifiactive bacteria and is unfit for food; yet if thoroughly cooked it may not be necessarily poisonous. Frequently one sees a greenish or bluish discoloration on the surface of a piece of meat, known as mildew. This is especially true with ham and bacon. It is caused by a parasitic fungus of many species, the spores reaching the meat by means of the air. This surface mildew is ordinarily non-pathogenic and requires only the severance of the portion to prevent further growth. The saprophytic processes occurring in meat due to maggots and mites seldom escape our attention.

Meat may be infected by disease before the animal is slaughtered or become contaminated after the slaughter by improper handling. A great deal of poisoning through meat is due to eating meat of infected animals, diseased before slaughter. Many bacteria are pathogenic for both

man and animals. The meat of animals infected with antrax produce the same infection in man; the same is true for tuberculosis, actinomycosis, septic pyaemic diseases and perhaps para-typhoid.

In recent years much blame for food poisoning has rested on the salmonella or para-typhoid group of micro-organisms. At one end of this group are the human para-typhoid organisms represented by the *B. para-typhosus* A and B, while at the other end are such organisms as the *B. enteritidis*, *B. suispestifer*, *B. aertrycke*, and the *B. abortus equi*, known as the animal para-typhoids. The human para-typhoids are primarily bacilli of human infections and pass from an infected human being to a healthy one in precisely the same way that *B. typhosus* does. *B. para-typhosus* A. and B. appear strictly limited to the human host, never having been found in infections of the domestic animals or in house vermin. The animal para-typhoids have been recovered from ailing animals. They have been recovered frequently in autopsies of food poisoning cases, and may even transmit true infection. Of the animal para-typhoids the *B. aertrycke* seems to be pre-eminently the organism of food poisoning. By far the larger number of para-typhoid cultures isolated from typical food poisoning outbreaks and completely identified by modern methods belong to this type. Jordan of the University of Chicago states that ten of the food poisoning strains in his collection are of this species, while Sauvage and White in their study of 100 recent outbreaks of food poisoning in Great Britain record a similar high proportion of *B. aertrycke*. The history of the outbreaks of food poisoning in which the *B. aertrycke* has been found often fails to present satisfactory information as to the source of the specific contamination. In instances reported by Sauvage and White such diverse articles as milk, canned tomatoes, beef brawn, cockles and canned apricots were suspected as the vehicles of infection. The frequency with which food stuffs of

other than animal origin are concerned lends countenance to the belief that contamination of food by rats and mice may be an important factor. Contamination by human carriers of *B. aertrycké* is a possibility but remains to be proved.

Both human and animal para-typhoids may cause food poisoning. The supposition is that under certain conditions they produce a preformed toxin accounting for the rapidity of onset of symptoms after the ingestion of the contaminated food.

Meat poisoning occurs more frequently in communities or countries where meat is eaten in raw or half raw forms. Pork and bologna sausage, ham, bacon, and other smoked meats stand first on the list of suspicious articles of diet. Under-done meats may harbor pathogenic organisms and their toxins which have not been reached by a sufficient amount of heat to either kill them or render their toxins harmless. A well-cooked meat contains no living bacteria, and it has been found that heat greatly attenuates the strength of toxins if present. Osler makes the statement that mutton and lamb thus far have never been implicated as a cause of food poisoning.

BOTULISM.

Botulism may be defined as a food-borne intoxication due to a pre-formed toxin of the *Bacillus botulinus*. It is a distinct disease in itself, running a definite course with characteristic symptoms. Fortunately, it is a rare disease. In the *Journal of the American Medical Association*, February 13, 1926, a special article, discusses the frequency of botulism, stating that there have been reported in the United States and Canada from 1899, to date, and including one outbreak from England, 147 outbreaks, or a total of 504 cases with 337 deaths, giving a case mortality of 67 per cent; fifty-four outbreaks have been proved toxicologically and bacteriologically. Geiger, Meyer and Dickinson's names have been closely associated with botulism, and to

them are we indebted for the above summary.

It must be recognized, however, that food may be somewhat detoxified by heating or warming up just before being consumed, and the strength of the toxin so reduced that the mild cases resulting may be over-looked or not diagnosed as botulism.

Formerly canned meats and sausage were looked upon with greatest suspicion as the vehicles for this intoxication, whereas today home-canned vegetables, such as string-beans and corn, are more blameworthy by far than any other foods.

We make the diagnosis of botulism from the nervous symptoms. At first the patient is conscious of a tired feeling, his vision becomes impaired or he may see double. Prostration occurs early and may increase rapidly. Difficulty in swallowing with thirst may be pronounced. A few days later the paralytic symptoms become aggravated. The facial muscles, likewise those of the neck, shoulders and arms become paralyzed. Finally, the muscles of respiration are affected, death resulting from respiratory failure.

MILK CONTAMINATION.

Milk is a universal food and becomes contaminated more readily than any other article of diet. As a culture medium for bacteria it has no equal and the way in which it is handled renders it very easy of contamination. The milk of healthy cows is free from bacteria inside the udder, but excrementitious matter, bacteria and dirt to a greater or less extent are washed off the udder into the milk during the process of milking. The bacterial content of milk may be increased through lack of cleanliness and by dirty milk cans. Not the number of germs but the species is of importance, *e. g.*, the species producing milk fermentation is harmless (sour milk, butter-milk).

The following milk defects are due to germs which mix with the milk during or

after milking: sour milk (*B. lactis*); blue milk, a state occurring within 18 to 36 hours after milking, due to the *B. cyanogenus*, in dirty stables, especially in spring and summer; red milk (*B. lactis erythrogenes*); yellow milk (*B. synxanthus*), appearing in boiled or curdled milk and changing it into a brown, yellow-like watery fluid; and slimy milk, due to the action of several bacteria, a condition where the milk is of a slimy consistency. The above mentioned bacteria are saprophytes and they may cause either a food poisoning or a food intoxication in sensitive children. Their manifestations are always intestinal disturbances.

Contamination of milk occurs most frequently from outside sources. Flies, dust, unclean vessels and dirty hands on the part of the milker, are responsible for the transmission of much infective material. Then, too, human carriers of *B. coli communis*, *B. typhosus*, *B. para-typhosus*, *B. dysenteriae* and many other micro-organisms render milk unfit for human consumption.

Tuberculosis occurs almost as frequently in cattle as it does in the human race. The bovine bacillus attacks the cow in two ways, diseases of the udder and general tuberculosis. In tubercular disease of the udder the milk contains enormous number of bacilli. This milk is not fit for human consumption and should be boiled even if given to animals. In general tuberculosis the bacilli circulate in the blood and pass into the milk. Raw milk containing the bovine type of bacillis is thought to produce tuberculosis in young children. As to the incidence of tuberculosis in cattle the following report is rather illuminating.

In the American Journal of Public Health, May, 1927, Tonney, White and Danforth published the results of their survey of the Chicago dairy district for the years 1923, 1924 and 1925. Of a series of 258 samples of raw milk destined for the Chicago market, 9 or 3.5 per

cent were found to contain living virulent tubercle bacilli of the bovine type. Of 73 samples of similar raw milk collected in one county of the Chicago dairy district, 5 or 6.8 per cent were found to be actively tuberculous. An estimate based on these experimental data of the amount of tuberculous milk sent to the Chicago market, indicates that in the three years prior to Jan. 1, 1926, approximately 43,000 quarts per day or over 15,000,000 quarts per annum contained living tubercle bacilli.

Two efficient methods for the control of bacterial contaminations of milk are established in the United States—namely, the pasteurization of raw milk and the tuberculin testing of cattle.

CONTAMINATION OF ICE CREAM.

Many severe epidemics of both food poisoning and food-borne infections have been traced to ice-cream. Pathogenic bacteria contaminating the milk from which the ice-cream is made is the cause. Until the same precautions—namely, the pasteurization of milk—were taken, epidemics of illnesses frequently occurred. Perhaps the most severe epidemic of typhoid fever traced to ice-cream occurred in Birmingham, Ala., in 1915. Lumsden of the U. S. Public Health Service found the source of the infection in a large ice-cream establishment that had neglected to pasteurize their milk.

CONTAMINATION OF CANNED FOODS.

Almost every kind of food is put up in cans at the present time. The canning industry in the United States alone is enormous and growing yearly. Modern methods of canning have reduced the chances of contamination of their products to almost a negligible point. No doubt many cases of food poisoning in the past that have been blamed on a canned product have been unwarranted. Instances where a can has been opened, partly consumed, and then set aside to become contaminated from some outside source have occurred frequently. The blame, then, has been put on the canner, whereas, had simple pre-

cautions been taken, no damage would have followed.

Occasionally living micro-organisms are left in cans due to insufficient heat having been used and the product put on the market. If the bacteria are gas producers the ends of the tins sooner or later become blown, *i. e.*, bulge out. Leaky cans, too, are found; the food quickly becomes contaminated and unfit for consumption. Little danger results from these conditions as cans of this type are palpably unfit for use. Canned foods sometimes contain the salts of lead and tin. This is brought about by these metals going into solution by the action of the weak acid contained in the preserved food on the can. The action of these metals brings about a dark discoloration of the food in the can and renders it unpalatable and unfit for consumption. Food poisoning from this cause rarely occurs.

CONTAMINATION OF OYSTERS AND SHELL-FISH.

The oyster is one of the scavengers of the sea. Taken from unpolluted waters it is a harmless article of diet. On the other hand, when the oyster falls into bad company, such as the *B. typhosus* or the *B. coli communis* it becomes a highly dangerous food. For many years it has been recognized that oysters transmit infectious disease and under certain conditions are the cause of food poisoning. In general it may be said that oysters are as pure as the water from which they are taken. When taken out of salt water they are quickly decomposed by bacterial fermentation, hence the care shippers of oysters are required to follow. In New York City the sale of oysters is under special Health Board supervision to guard against infection. Readily we recall the epidemic of typhoid fever along the Atlantic seaboard two years ago. The source of the infection was traced to oysters. It was gratifying, too, to see how efficiently the Boards of Health of various inland states placed an embargo on the importation of oysters across their borders.

Lobsters, crabs and shrimp constitute a wholesome food when absolutely fresh. They are scavengers of the sea like the oyster and crabs, and when they are not thoroughly cleaned or imperfectly cooked, they may be poisonous from contamination with putrid matter, although their own flesh is good. Lobsters are highly poisonous to some persons even when fresh, and especially if eaten with other food may excite nausea, vomiting, and gastro-enteritis. In others they may cause urticaria or intensify existing skin affections, such as eczema. Lobster may be eaten in conjunction with any other food, providing both are fresh, without causing distress.

In reviewing this subject one is impressed with certain outstanding features; the necessity of proper preservation and preparation of all articles of diet; the importance of correct diagnosis of food poisoning; and the necessity of further work along bacteriological lines.

DISCUSSION.

Dr. D. V. Galloway (Clarksdale): I just want to express my appreciation of this wonderful paper. It has been so well covered that I do not see how anything could be added, but how can we apply the knowledge that has been given to us in this paper? We in Mississippi are having food poisoning—certainly we are—we get contaminated food; we get food that is causing sickness right straight along. Now if we could get the knowledge in that report to the epidemiologists of the state, then we could work out just where we are getting this infection. We could contribute wonderfully to the literature on this most important fact, and I just hope that we will apply the knowledge that was given us in this most excellent paper.

Dr. F. M. Smith (Vicksburg): Perhaps we go too fast in saying that we have these acute attacks. We do not recognize the fact that sometimes unwholesome food taken into the body is having all the time its effect. Perhaps it is aided by the extra burden placed upon our bodies, by the introduction of foreign or unwholesome food. We appreciate the fact that pasteurized milk does a great deal to kill the bacteria themselves. We are glad that we are realizing that fact, and eating less raw food, but we should remember that there is also a toxin produced by these germs them-

selves that heat does not affect, and a great many factors that have reached the border state that do not produce acute symptoms, yet are dangerous to the body economy. But we should not wait, we should institute these health methods of supervising the slaughter of our meat, the condemnation of flies and the self-preservation of the race.

Dr. D. G. Rafferty (closing): Just a word I wish to say about this group of organisms, and that is it is different from any group of organisms that we know anything about. In one case it produces a true infection, while in another case in a period of minutes to a few hours, a profound poisoning results. Nobody knows much about this *Salmonella* group. There is a great deal of confusion in the literature, and what determines whether one of these organisms is going to cause a poisoning, or cause typhoid fever we do not know.

THE USE OF FOREIGN PROTEINS IN THE TREATMENT OF DISEASES OF THE EYE.*

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If we regard vaccines as a foreign protein in the treatment of diseases of the eye our experience in this kind of treatment goes back to the time of Jenner. Probably everyone now engaged in the practice of ophthalmology, whose medical experience antedates the common use of some form of inoculation therapy, has noticed the effect on the eye of the injection of serum or antitoxin when given for the purpose of lessening susceptibility to disease, or for combating a disease already established. Yet, the consideration of treatment by foreign proteins has, within the last decade, taken a prominent place in medical circles. Much time is given to the discussion of clinical results, experiments have been carried out to determine the character of the reaction to proteins, and synthetic products have been marketed with statements as to

their efficacy from physicians who have used them.

Attention has been focused on the action of proteins on the reticulo-endothelial system, on the production of anti bodies, and the probable rôle played in the stimulation of the production of antibodies or antibody exfoliation. The clinical and physiologic effects of parenteral injection of protein substances have been studied and correlated with symptoms from a modern standpoint, and although carefully scrutinized from a scientific point of view, proteins are still given on an empiric basis.

From the study of the parenteral administration of protein substances has come our knowledge of the toxic character of many of them. Anaphylaxis was known as a protein reaction at the beginning of the present century and the term was used by Richet to mean "without protection," indicating that the first injection destroyed any natural resistance that the animal might possess against the poison. Vaughan wrote that all true proteins contain a poisonous group, a chemical nucleus, "which does not become a poison until stripped in part at least of its secondary groups and the intensity of its poisonous action is determined by the thoroughness with which the secondary groups have been removed." It was his opinion that the poisonous nucleus was not responsible for the reaction seen in protein administration but that the side chains, the secondary groups, determined the specificity of the substance, for it is in these secondary groups that one protein differs from all others.

According to Wells, almost any protein will act as antigen, while no substance except proteins have this capacity. He stated, "At the present time it has not been conclusively established that anything except proteins ever exhibit true antigenic activity and lead to the production of specific antibodies. On the other hand, it is safe to state that nearly if not every

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known sort of soluble protein occurring in nature is antigenic, if we limit our use of the term protein to those colloidal aggregates of amino acid which contain the full quota of amino acids usually found in complete proteins."

The sensitization produced by protein is specific; hence the characteristic clinical picture of the infectious diseases known to be due to the protein of certain bacteria. The production of antibodies, however, is brought about by injection of foreign proteins, regardless of any specific sensitization, and almost any degree and kind of fever can be produced by regulating the dose and the time of administration.

The way in which foreign proteins act to bring about a stimulation of healing in tissue which is locally infected has been the object of much study, and several theories have been advanced to explain it. We shall not enter into a consideration of these theories more than to say that proteins administered parenterically are probably diffused throughout the body, and as they come in contact with a large number of body cells whose walls are permeable they set up chemical reactions within these cells which in turn produce a ferment that stimulates antibody formation or "exfoliates" a large number of antibodies already formed. The benefit produced by parental administration of any foreign protein is therefore determined by this activity of the body cells. There is reason to believe that such action is limited in the case of most of the foreign proteins commonly used. Some proteins are destroyed by the body almost as soon as they are taken up by the blood without producing any reaction that can be recognized, while others produce mild reactions sometimes with slight fever. When proteins are used for their therapeutic effect in diseases of the eye, the specific effect is not essential. Only the cells in the vicinity of the lesion are sensitized to the invading organism and they do not throw off enough antibodies to

bring about healing. Under favorable circumstances, the production of exfoliation of a large number of antibodies of another toxin when thrown into the blood stream will augment the action of whatever specific antibodies are already present and help to turn the indolent or nonhealing lesion into a healing one or at least help to retard its progress. It is on the basis of this phenomenon that foreign proteins are used in ocular therapeutics and that the choice of proteins which may be used is not limited.

Vaccines are given in small doses and are intended to raise an immunity to disease. They are specific proteins which presumably stimulate the formation of antibodies in small numbers. They are of little benefit in combating a disease that is once established and they may do definite harm. They have definite and proved value in ocular therapeutics but have fallen into disrepute largely through misapplication. A nonspecific effect is also derived from vaccines; this is noticeable if the dose is large or the patient sensitized, but in the dosage usually employed their action is slight in comparison with other proteins. They are to be employed at weekly intervals for several weeks or months, after the acute stage of a disease of the eye has abated. Vaccines should be used to produce a high degree of immunity to a particular infection, whereas other foreign proteins should be used to effect immediate action in an acute condition. Vaccine should stimulate the formation of specific antibodies, and other foreign proteins should stimulate the formation of non-specific antibodies. As this paper is concerned more with the latter action, vaccines will not be considered.

The substances which we have used in the cases referred to here are milk, typhoid vaccine, and antidiphtheritic serum. Milk was most frequently chosen for injection because of the freedom from severe reaction or anaphylaxis.

PRIMARY UVEITIS

In the more severe attacks of primary uveal inflammation, foreign protein seems to allay pain and bring about a feeling of comfort in the eye that is appreciated by the patient even though this is gained through a general reaction, often accompanied by headache, malaise and fever. In many cases the congestion leaves the eye, and the anterior chamber becomes clearer after the first injection. The results, however, are not uniform. Of seventeen cases of primary uveal inflammation good results were obtained by protein injection in thirteen; improvement did not occur in four. One of the four patients was a young man who suffered an acute attack of iritis while he was being treated for prostatitis. He received only one injection of 10 c.c. of milk and was unable to stay for further treatment. The second was a man aged sixty-three who had had chronic iritis for one year. Both eyes were affected and vision reduced to 4/60 in the right eye and 6/60 in the left eye. From October 23 to November 20, 1923, ten injections of 10 c.c. of milk each were given. On only three occasions did the temperature rise above 99° following the injection. Pain continued in the right eye. Three injections of typhoid vaccine were given followed by a course of streptococcus vaccine. Large doses of salicylates, mercury, thyroid extract and other agents were used without any improvement. The right eye was enucleated February 27, 1924, and found to contain a conglomerate tubercle involving the ciliary body and choroid with extension of the inflammation into the cornea and sclera. The left eye, however, which had been affected only slightly at first, improved under the treatment and when the right eye was removed the vision of the left had improved from 6/60 to 6/10. The patient died in May, and the cause was not ascertained.

The third and fourth cases were of middle aged men with bilateral uveitis which had existed for more than two years. One received only two injections of 10 c.c. of

milk, the other injections of aolan. Prostatitis and dental infection of several years' standing were found in these two cases.

The best results were obtained in cases of iritis of short duration, from two to thirty days, although improvement occurred in one of 150 days and another of 400 days. Four injections of 10 c.c. of milk each were usually given besides the local treatment to the eye. Of the thirteen patients who obtained good results from the treatment, three received typhoid vaccine and one antidiphtheritic serum after four injections of milk had been given and the eye was not clearing satisfactorily. The change in the protein may not have been the cause of the improvement, but the possibility must be considered.

The etiology of the disease could not be determined in three of the thirteen cases of iritis. Persons in whom a focus of infection could not be found, or in whom the etiology could not be determined, made the most rapid and most satisfactory improvement. A positive Wassermann reaction was not obtained in any case. It was believed that metastatic focal infection of the uvea was present. Tuberculosis may have been present in more than the one case mentioned but not diagnosed. In the cases in which treatment failed to be effective, either the treatment administered was less than is usually given or some active focus of infection, such as prostatitis, was present which could not be eliminated. In general, little improvement was noted in cases in which the disease had been active for several months or in which there had been several previous attacks. The best results were obtained in the patients seen early in the first attack. In this series the ages ranged from fourteen to seventy years; the age, therefore, was not a factor in the therapeutic effect of the injections (Table 1).

SECONDARY UVEITIS

Iritis and iridocyclitis occur frequently after operations in which the eyeball has been opened, and after the eye has been in-

jured. The severe cases are usually indolent and chronic and yield to treatment slowly if at all. The eye is often irritable and does not tolerate intensive local treatment. Focal infection probably contributes to the chronicity of the disease and if possible should be removed. The cause of the continued inflammation may not be bacterial, as, for example, an operation on the eye or a burn of the cornea or conjunctiva. The use of foreign proteins for this condition may best be illustrated by the cases shown in Table 2.

The results in this group depended largely on the complicating factors. In cases in which there was keratitis or corneal leukoma, the inflammation of the uveal tract was not diminished by the injections. One patient with secondary glaucoma was not benefited. As in the series of primary uveal inflammation, the injections of milk had less influence on the course of the disease if the exciting cause persisted.

SCLERITIS

The most satisfactory result that we have noticed from the injection of milk has been the immediate effect on scleritis. This is a painful chronic disease characterized by remissions and exacerbations of congestion of the scleral tissues and often with sclerosing infiltration of the cornea. The iris, ciliary body and choroid are often involved in areas directly beneath the inflamed sclera. Scleritis is found most often in women, and usually begins shortly before the age of twenty and continues to reappear at intervals throughout life. The chronic or recurrent cases are said by Verhoeff to be due to tuberculosis, although focal infection certainly may be considered as an etiologic or a contributing factor in many of them. The treatment of this condition heretofore has been unsatisfactory. Treatment with tuberculin has been found to do more harm than good in this disease, as we believe is true in most other conditions of the eye for which it is administered. Benedict, Von Lackum and Nickel reported in a recent paper the results of

investigation and treatment in a series of cases of scleritis associated with focal infection. Moench has studied the relation between scleritis and infection in the pelvic organs of women.

We have seen cases of scleritis, which had existed for months with constant redness and pain, clear up after two injections of 10 c.c. of milk. Table 3 illustrates the use of milk in this disease, but the data are not conclusive. The patient in Case 31 had been suffering from recurrent attacks of scleritis for more than twelve years. She had been told that the eye trouble was due to local tuberculosis and had been sent West from a large eastern city in the hope that the climate would be of benefit. The attack which brought her to the clinic was severe; the pain prevented rest, and the vision was failing. Two injections of milk followed by a course of autogenous vaccine resulted in complete disappearance of all symptoms and the vision was fully restored.

The patient in Case 35 had had recurrent attacks of scleritis for ten years. On three occasions in as many years she has been hospitalized and given injections of milk. Each time the eye became clear after from one to four injections. Immunity was not produced by these injections. An exacerbation might follow within a few days after a successful course of treatment had been concluded. She refused to take vaccine because of a severe setback she had experienced a few years before while taking a course of tuberculin. She now gives a positive Mantoux reaction to 0.02 mg. of tuberculin.

CHOROIDITIS

Exudative choroiditis with vitreous opacities of obscure etiology may show improvement after treatment with protein is instituted. The changes take place more slowly than in cases of external inflammation. Definite improvement followed injection of milk in two cases in which treatment with other remedies had been without effect.

Table 1
Iritis, iridocyclitis and uveitis treated in the hospital by parenteral injections of foreign protein
Primary

Case	Age	Date	Diagnosis	Previous attacks	Duration of present attack, days	Milk c.c., or typhoid vaccine	Highest recorded temperature, degrees	Comment	Result
1	14	11/19/27	Iritis of left eye		10	10 10 10 10	98.6 100.0 100.0 101.0	Etiology unknown, general examination negative	Good
2	35	4/1/27	Iritis of left eye		7	10 8	100.0 100.0	Tonsils infected 3	Good
3	53	1/2/28	Iritis of right eye		2	10 10 8 10	101.8 102.2 101.2 101.0	Etiology unknown, general examination negative	Good
4	70	1/23/28	Iritis of left eye	1	150	10 12 12	100.4 101.6 100.0	Prostatitis 2; tonsils infected 2	Good
5	53	11/9/27	Iridocyclitis of left eye		400	10 10 8 6 6 6	99.5 101.0 101.5 100.8 100.5 100.3	Treatment in June, 1927 with vaccine prepared from culture from the cervix, no effect	Good
6	16	11/1/27	Uveitis of left eye		30	10 12	98.6 98.6	Tonsils infected 2; five injections of diphtheria antitoxin given on five successive days	Good
7	45	4/26/27	Iritis of left eye	5	2	10 8	100.0 100.2	Foreign body in right eye five years previously removed early without scarring; recurrent iritis since; three teeth infected	Good
8	30	2/17/27	Iritis of both eyes	2	7	10 10 8	101.0 103.8 100.0	Etiology unknown; general examination negative	Good

9	27	12/31/23	Iritis of right eye	3	6	2 10 *T.V.	100.0 98.6	Several attacks of iritis in last four years; under treatment for gonorrhea	Good
10	40	1/26/25	Iridocyclitis of right eye	5	60	5 8 T.V. T.V. T.V.	98.6 98.6 98.6 98.6 98.6	First attack twelve years previously; prostatitis	Good
11	15	6/20/24	Uveitis of both eyes		210	10 10 10	99.2 101.2 98.2	One infected tooth removed	Good
12	30	8/27/27	Iridocyclitis of right eye		6	5 7	99.4 100.0	Left eye removed one and a half years previously for iridocyclitis; eight infected teeth removed	Good
13	35	1/7/26	Iritis of right eye	7	5	8 10 10 10 10 10 10	98.6 98.6 98.6 98.6 98.6 98.6 98.6	Onset seven years previously; prostatitis 2, treatment for this made eye worse	Good
14	27	11/13/23	Iritis of left eye		3	10	99.0	Iritis developed during treatment for prostatitis 4	Good
15	63	10/11/23	Iritis of both eyes		350	10 10 10 10 10 10 10 10 10 10 10 10 T.V. T.V. T.V.	98.6 98.6 98.6 101.4 98.6 100.4 99.0 99.5 99.0 98.6 103.0 101.0 102.0	Treatment had no effect; right eye enucleated 2/27/24; a tubercle involved the ciliary body and choroid	No improvement
16	32	5/25/26	Uveitis of both eyes		730	10 10	? ?	Prostatitis 3; two infected teeth and tonsils removed one year previously	No improvement
17	42	12/24/23	Uveitis of both eyes		3500		?	Prostatitis 2; periapical infection 2; aolan from February 8 to April 3, 1924	No improvement

*T.V. = typhoid vaccine

Table 2
Iritis, iridocyclitis, uveitis
Secondary

Case	Age	Date	Diagnosis	Duration	Duration of pres-ent attack, days	Milk c.c., or typhoid vaccine	Highest recorded temperature, degrees	Comment	Result
18	73	7/12/27	Uveitis of left eye; second-ary to operation	1.5 months	5	10 8 7 8 7	101.0 101.0 99.0 102.0 100.0	Cataract removed 7/20/27; considerable reaction begin-ning on fifth day and lasting two weeks; exacerbation 8/28/27; patient returned 9/3/27; given injections of milk; five teeth with root abscesses removed; which may have been a factor in the rapid diminution of the inflammation	Good
19	52	6/13/27	Uveitis of left eye; sec-ondary to steel in the eye	8 months	10	10 8	100.2 101.2	In the autumn of 1926 a piece of steel was in the left eye for three days; after removal of foreign body the eye appeared normal until the present attack; tonsils were infected 2, prostate 2, and periapical 2, patient did not remain for treatment	Good
20	78	4/28/22	Uveitis of right eye; cor-neal leukoma secondary to foreign body in cornea	5 weeks	35	3 4 5 5 5	98.6 99.0 99.5 99.0 98.0	Dirt flew into right eye five weeks previously; in spite of use of atropine and aspirin inflammation continued; diminished quickly after first injection of milk	Good
21	42	8/23/26	Uveitis of right eye; sec-ondary to concussion	32 years	14	*T.V. T.V.	100.0 98.0	Kicked in right eye by colt at age of ten; vision in this eye poor ever since; became inflamed two weeks previous-ly; general examination revealed syphilis and pros-tatitis 3	Good
22	50	2/2/28	Iritis of left eye; second-ary to steel in eye and injury to cornea by fly-ing glass	3 years	7	10 15 15 15	99.6 100.2 100.4 101.6	Piece of steel lodged in left eye January, 1925; removed with magnet at the Mayo Clinic January, 1926, with little reaction; traumatic cataract; eye blind. After second injury seven days before examination the eye became greatly inflamed; this cleared after four injections of milk; another attack occurred three weeks later, this did not yield to two injections of milk; the eye was re-moved	Good
23	49	11/29/26	Iritis of right eye; sec-ondary uveitis, compli-cated cataract; eye qui-escent many years before extraction of cataract		3	10 8 8 8	100.0 100.0 100.0 ?	In 1881 the left eye was injured and removed a few days later; low grade iritis in right eye for many years; optic iridectomy in clinic 12/2/26; little reaction of vision 3/60; 6/6/27 extraction of complicated cataract of right eye of forty years' duration; a few days later hemorrhage occurred in the anterior chamber with con-siderable reaction; injections of milk at this time; eye quiescent after a few weeks; vision 6/15	Good

24	50	7/9/27	Iridocyclitis; corneal leukoma of right eye secondary to injury in childhood	40 years	150	10	101.0 98.6 99.6 99.6	Right eye injured in childhood; easily irritated since; exacerbation three months ago; this disappeared after injections of milk	Good
25	39	5/27/26	Iridocyclitis and keratitis of left eye; secondary to injury to cornea	2.5 years	14	10	100.2 100.5 99.2 100.2 100.0 99.5 103.0 102.0	Left cornea scratched by barley beard in August, 1923; ulcer and later keratitis developed; eye painful for five months then quiescent until May, 1926, when it again became inflamed; with injections of milk inflammation subsided slightly; later ulcer appeared at center of cornea; eye remained red and painful for four months; 10/8/26 it was enucleated; tonsils were infected 2, prostate 3	Good
26	33	5/31/27	Iritis and corneal leukoma of left eye; recurrent corneal ulcer of left eye	16 years	150	10 8 8 7	101.5 103.3 102.3 101.6	History of ulcers of left cornea in 1911, 1915, 1919, 1922, and iritis in the same eye in 1922; the eye has been painful for the last five months; injections of milk caused immediate subsidence of inflammation, but within a week there was another "flare-up"; later two injections of typhoid vaccine were given without benefit	Good
27	59	8/23/26	Iritis of right eye; secondary to discission of after cataract	21 days	21	10	101.0 100.0 103.2	8/14/25 extraction of nuclear cataract of right eye with mild reaction; 8/3/26 discission same eye, with moderate reaction; 8/6/26, eye quiescent; vision with correction; right eye 6/10; left eye 1/60; 8/23/26 returned to clinic complaining that the right eye had been inflamed for the last few days; two injections of typhoid vaccine a week apart with doubtful result; eye continued to flare up at irregular intervals; 6/24/27 iridectomy of right eye followed by bleeding into the anterior chamber; 6/29/27 10 c.c. milk injected without benefit, severe reaction; injection not repeated; 11/21/27 iridotomy of right eye; moderate reaction; 11/28/27 vision right eye moving objects; left eye 2/60	No improvement
28	47	11/10/27	Iridocyclitis and secondary glaucoma of left eye; corneal ulcers	50 days	50	10 12 12	99.2 100.0 99.0	Corneal ulcer appeared on left eye seven weeks previously; two weeks later the eye became greatly inflamed; hospitalized for four weeks, elsewhere without improvement; came to clinic; three milk injections without benefit; left eye enucleated 11/26/27 because of severe pain; infection of tonsils 3	No improvement
29	21	9/27/27	Iritis and keratitis disciformis of left eye	9 weeks	4	10 10 12 12	101.0 100.8 102.0 98.0	Foreign bodies from emery wheel flew into left eye nine weeks previously; removed the following day; eye remained inflamed for two weeks; quiescent until four days previously when it suddenly exacerbated; no improvement while in clinic	No improvement

* T. V. = typhoid vaccine

Table 3
Data on eight cases of scleritis and episcleritis treated by injections of foreign protein

Case	Age	Date	Duration of pres-ent attack, days	Injections of milk, c.c.	Highest recorded temperature, degrees	Comment	Result
30	37	12/30/27	30	10 10 12 15	89.4 101.2 ? 100.2	Scleritis of left eye; several previous attacks; frequent ulcers of left cornea during last four years; treated with vaccine from cervical culture following injections of milk; positive Mantoux test 1/200 mg.	Good
31	32	1/4/27	60	5 10	98.6 99.0	Scleritis of left eye; recurrent attacks of both eyes for several years; given vaccine made from cervical culture following injections of milk	Good
32	36	12/15/24	35	8 10 12 10 12	98.6 98.6 98.6 98.6 98.6	Episcleritis of right eye; eye not previously diseased	Good
33	26	6/4/24 8/9/24	14	10 10 10 5 10 10 10 10 10	99.2 100.5 100.5 99.0 99.0 99.0 99.2 99.2 99.0	Episcleritis of right eye 1/50 mg. tuberculin subcutaneously; no reaction; right eye injured in 1914; no trouble until the last fourteen days; eye flared up 8/9/24	Good
34	22	9/5/24	180	10 10 10 10 10	99.0 99.8 98.8 99.0	Eyes had been inflamed constantly for the last six months; left was acutely inflamed when examined; vision of right eye 6/6; left eye moving objects; after injections of milk eyes were clear and free from inflammation, vision of right eye 6/6; left eye 6/10	Good
35	26	11/8/24	50	5 10 17 20	98.6 98.6 100.0 102.0	Scleritis of right eye; positive Mantoux 1/200 mg.; eye not previously diseased; teeth, tonsils and cervix infected	Good
36	40	4/11/23	14	6	99.0	Scleritis of left eye; eye not previously diseased; teeth and tonsils infected	No improvement
37	76	5/5/24	35			Scleritis of both eyes; left eye injured twenty years previously; under treatment for corneal leukoma and sclerosing keratitis for last seven years; later was given nine injections of vaccine made from cervical culture with apparent benefit; three injections of typhoid vaccine	No improvement

Table 4
Penetrating injuries of the globe with retention of foreign body

Case	Age	Date	Days after injury	Diphtheria anti-toxin, units*	Injection of milk, c.c.	Highest recorded temperature, degrees	Comment	Result
38	15	10/1/27	21	2000 2000 2000 2000 2000 2000 2000 2000 3000 3000 3000 3000 3000 3000 3000			Foreign body in left globe; threatened sympathetic ophthalmia of right eye; left eye perforated by a piece of metal when a railroad signal torpedo exploded; home physician was unable to remove foreign body; and performed iridectomy; left eye greatly inflamed; x-ray showed foreign body within the globe, not magnetic; right eye normal; vision 6/7, left eye moving objects; course of foreign protein; 10/2/27 (after treatment); right eye remained normal; left eye now quiescent, lens cataractous and about half of it is absorbed; vision of right eye 6/5; left eye count fingers at two feet; 11/29/27 eye still quiescent and comfortable	Good
39	12	8/16/27	11		5 5 4	103.0 101.5 99.0	Panophthalmitis of left eye; 8/5/27 a piece of hot iron perforated the left globe; six days later home physicians located it by x-rays and made an unsuccessful attempt to remove it; two days later eye inflamed, lids swollen, and pus formed within globe; came to clinic 8/16/27 eleven days after the accident; injections of milk; eye perforated spontaneously 8/23/27; evisceration 8/23/27; uneventful convalescence	No improvement

* Injected at intervals of twenty-four hours.

Penetrating injuries of the globe without retention of foreign body

Table 8

Case	Age	Date	Days after injury	Milk, c.c. or typhoid vaccine	Diphtheria antitoxin, units *	Highest recorded temperature, degrees	Comment	Result
40	23	1/24/27	25	10 12 12 12 10 8 10 10		100.8 100.2 100.3 101.5 100.0 98.0 99.6 99.6	Right eye-ball cut by fork 1/1/27; iris protruded through wound and iridectomy performed; eye has been inflamed since; 1/25/27 to 1/30/27 first series of milk injections; a few days later inflammation subsided markedly; patient dismissed; returned 5/23/27 complaining that the eye had been inflamed occasionally; then worse; 6/10/27 to 6/16/27 the second series of milk injections was given; inflammatory signs and pain subsided, but recurred 6/21/27	Good
41	34	3/31/26	7	15 15 **T.V. T.V.		99.0 99.5 99.5 99.0	Piece of steel flew into left eye 3/26/26; the following day the home physician made an unsuccessful attempt to remove it; 3/21/26 congestion of bulbar conjunctiva and deep circumcorneal injection; foreign body localized by x-ray; removed by magnet in clinic 4/1/26; series of injections of milk; two injections of typhoid vaccine 4/13/26; still moderate injection of the eye; pupil well dilated; patient dismissed	Good
42	42	4/10/26	6		10,000 15,000 10,000 10,000	99.0 99.0 99.0 99.0	Sclera of left eye perforated by shingle nail 6 mm. from limbus; injection and chemosis of bulbar conjunctiva; inflammation subsided steadily; three weeks later still slight congestion and many floating vitreous opacities, 11/27/26 eye quiescent; vision of right eye 6/6; left eye 6/20	Good
43	20	12/6/24	14	5 10 T.V. T.V. T.V.		99.5 99.2 99.2 99.0 99.0	Small piece of steel struck left eye 11/30/24; marked congestion of bulbar conjunctiva and circumcorneal injection; some opacity in lens; two roentgenograms failed to reveal foreign body; inflammation continued; hypopyon began to form 12/13/24; foreign protein 12/24/24; hypopyon disappeared; eye became quiescent; three injections of typhoid vaccines; flared up again a week after last injection; remained irritable for a year and a half	Good
44	16	5/11/25	21	5 8 10 10		101.3 100.0 99.0 101.5	Three weeks previously following an explosion, a piece of brass pierced the right eye-ball; removed by a physician who advised enucleation; this was refused; deep injection of bulbar conjunctiva; wound of cornea down and out, with incarceration of the iris, lens cataractous; x-ray showed multiple shadows over orbit; foreign protein injections at forty-eight hour intervals; 5/27/25 no change (after the injections) 6/6/25 eyeball phthisical; moderate circumcorneal injection; tension 3	No improvement
45	39	8/18/27	3	10 8 10 10		99.5 99.0 99.0 100.0	On 8/15/27 the knot on the end of a long whip struck the right eye; severe pain since; lids swollen, moderate injection of bulbar conjunctiva, some chemosis, laceration through upper portion of cornea and iris, hyphema occupies lower 2 mm. of anterior chamber; eyeball dark on transillumination; tension to palpation +3; injections of milk; 8/29/27 pain persists; fresh hemorrhage into anterior chamber; dismissed at own request; no improvement except decrease of pain	No improvement

*Injected at intervals of forty-eight hours.

**T.V. = typhoid vaccine.

In one case in which the cause was obscure the vision of the affected eye was reduced to 1/60 by vitreous opacities which had existed for four months. Four injections of milk were given and there was a febrile reaction following each injection. The opacities cleared away rapidly and vision of 6/7 was restored in four weeks. A large lesion in the choroid in the lower quadrant of the eye was the evident source of the opacities. This area did not show activity at the end of the treatment. In a case of disseminated choroiditis of the left eye the vision had been clouded for eight months and was reduced to 1/60 at examination. Four injections of milk were given with a resulting slight febrile reaction. This was followed by four pilocarpine sweats. Vision improved to 6/15 after four weeks of treatment. Large vitreous opacities remained, and there were many areas of choroidal atrophy at the periphery of the fundus. There was no evidence of activity. The significant feature of these cases is the rapid response to treatment after the condition has been stationary for many months. The improvement must be credited to the injection of milk, although other treatment was continued as well.

PENETRATING INJURIES OF THE GLOBE

Cases of penetrating injury of the globe, in which a foreign body is not present in the eye at the time treatment is started, constitute a small list of considerable interest. If the eye is not infected at the time of injury the immediate effect of injection of milk is to allay pain and reduce congestion. Other general and local treatments should be given with or immediately after the course of milk, as the first improvement is of short duration. In one case of penetrating injury with a foreign body, probably with retention of a small piece of stone within the eye, sympathetic ophthalmia was imminent and large doses of diphtheria antitoxin were given. The eye has remained quiet. A case of panophthalmitis was not affected by the use of small amounts of milk. In this case larger doses

might have been of some benefit (Tables 4 and 5).

MISCELLANEOUS LESIONS

We have used injections of milk, typhoid vaccine and diphtheria antitoxin in a miscellaneous group of lesions, of the cornea and conjunctiva and in wound infection. Regardless of the duration of the disease or the age of the patient, the results obtained were not far different from those obtained by local and general remedies other than the injection of protein. Only hospitalized patients were given protein therapy, and few of our patients with corneal lesions required treatment in the hospital. It has not been our practice to use any injections unless the reaction can be observed, particularly if a febrile reaction is expected. Injections of milk were usually given at intervals of forty-eight hours, diphtheria antitoxin daily. Typhoid vaccine was given at longer intervals, depending on the severity of the general reaction.

Protein therapy is used with good results in some diseases of the eye. The substances in most common use are milk, typhoid vaccine, diphtheria antitoxin, and proprietary medicaments. The indications for use and the choice of the substance to be used are not clearly established.

CONCLUSIONS

The histories of patients who have been treated with various proteins have been reviewed, and the following deductions have been made:

1. The age of the patient has no bearing on the result of the treatment.
2. Boiled milk is a safe protein to use. No anaphylaxis has been observed.
3. Some patients fail to react to injections of one protein. Other proteins may then be used.
4. Large doses of diphtheria antitoxin can be given daily for from twenty to thirty days.

5. Some chronic diseases of the eye respond to protein therapy; the treatment should be continued long enough with sufficient quantity of protein to determine whether or not there is any effect.

6. Protein therapy is an adjunct to general and local treatment but has great value in early inflammatory disease of the eye and should be used freely in hospitalized patients. Its value is considerably less in ambulatory patients.

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DISCUSSION

Dr. Jules Dupuy, (New Orleans): I have always been deeply interested in the subject of milk injections and, as far as I know, believe I was the first in New Orleans to use this therapy, at least to employ it in Charity Hospital according to the records of that institution.

In the beginning I was subjected to criticism and ridicule and was always confronted with the task of proving that milk injections were responsible for the beneficial results. My confreres would say: "If you had not given the milk injection, don't you think that the eye would have improved just as rapidly?" Dr. Feingold especially would often say: "It looks well, but without the milk injection don't you think the eye would have been cured?" In answer to these questions I could only state that from observation the cases in which I employed this therapy always seemed to improve and get well more rapidly than those in which it was not used.

The first case I remember was a post operative infection. This woman had a severe plastic iridocyclitis and panophthalmitis. After the milk injection her improvement was simply marvelous. I saw this patient in conjunction with Dr. Dimitry.

As a rule the improvement is equal to the amount of constitutional reaction obtained; in other words, if followed by a chill, malaise, the patient greatly disturbed, the improvement is

more marked than when there is low temperature and very little clinical reaction. In Charity Hospital it has been adopted as the routine treatment in gonorrheal ophthalmia. The result derived therefrom seems almost miraculous.

I do not know whether the essayist mentioned that it is given according to age. To a child around four or five years we give 2 c.c.; in adults about 10 to 15 c.c., repeating the dose according to the constitutional reaction. If your patient has a severe reaction, wait until subsidence, then give another dose: if the reaction is mild, give a larger dose.

In post-operative and traumatic infections foreign protein injections, particularly milk, are a great weapon and in gonorrheal ophthalmitis a very powerful weapon. The general practitioner in the country is the man who should most appreciate this therapy, particularly in the early treatment of puncture infections of the eye where prompt action is necessary, and in gonorrheal infections which are so plentiful in the country. The response to treatment is very rapid. An eye may be almost closed, painful, swollen and extremely hard to open, but a short while after the milk injection the improvement is apparent. If you do not care to give the full dosage, give 10 c.c., preferably in the buttock. It can be given in the pectoral region and in the sides, but in those cases where we go deep in the gluteal muscles it seems to be more rapidly absorbed and give the best reaction. As previously stated, the benefit appears to be in proportion to the constitutional reaction.

Dr. T. J. Dimitry (New Orleans): Dr. Benedict is to be highly complimented in the presentation of a study of a difficult problem, "Milk as a foreign protein, used therapeutically." The use of this foreign protein is most noticeable in its beneficial effect and in particular in certain eye conditions.

I interested myself starting some sixteen years ago in the same problem, and I still remain greatly interested in the study of the foreign proteins and of certain inorganic substances like that of mercurochrome injected intravenously producing a protein reaction. I can not say that I have found anything quite so satisfactory as I have milk.

Milk like all agents when used therapeutically has its limitations and at times may be quite harmful. The use of milk is very much contraindicated in my opinion, where tuberculous, particularly in the eye, exist. I have observed permanently and complete destruction of the eyes in tuberculous following its administration parentally.

Dr. Dupuy is mistaken in his claim for priority of the use of milk in this community. I refer him to the New Orleans Medical and Surgical Journal of many years back—for a modest contribution on the subject.

This offers an opportunity to call Dr. Cohen's attention to error in his claim in a paper just previously read that Touro Infirmary first installed "deep roentgen-ray" apparatus. I refer him to the public press of the City of New Orleans.

Dr. Jules Dupuy (New Orleans): I think Dr. Dimitry misunderstood me. I said that the first milk injection in the treatment of eye diseases recorded at Charity Hospital was given by me and that, as far as I knew, it was probably the first done in New Orleans. Now, before I made that statement, I carefully looked through Charity Hospital charts of eye cases covering a period of fifteen years and according to the records I am the first to have used this therapy in the institution. If Dr. Dimitry at some earlier time employed this method of treatment, he certainly made no record of it.

I am sure I did not mean to take any credit from Dr. Dimitry. He has always been very close to me and if I have robbed him of any distinction I wish to apologize. In claiming priority in the use of this treatment at Charity Hospital I made the mistake of relying on the information derived from the record of that institution.

Dr. Joseph Cohen (New Orleans): I was under the impression that Touro Infirmary was the first to have a deep roentgen-ray therapy machine in New Orleans. If it was not, I want to publicly acknowledge my mistake.

THE NEW PHARMACY—The following is an exact and literal transcript of a communication recently received by the Editor of this Journal:

A PRESCRIPTION FOR FITTS

One quart of bourbon Gin.
Imported from France.
half pound of Gunpowder tea.

half Pound of Square Cut Loaf Sugar. boil these down to A Gill use them until the Desease breaks

The suposition is in 24 hours for the strongest strongest Desease

inflammations on the glandes around the heart
Brain & Lungs & Stomach.

Some vitules for A Weak State
Take A White Wheat Loaf, of bread
Dry it to A dark brown Powder.
Mix the Powder with salt & Sugar & Water
bake in A Slow oven

THE EYE PICTURE, IN RELATION TO INTRACRANIAL LESION WITH REPORT OF CASE.*

FERN CHAMPENOIS, M. D.,

HATTIESBURG, MISS.

In presuming to present this paper to such an intelligent body of ophthalmologists, I realize my limitations and inability to discuss the subject in such detail as would my more experienced colleagues, or as would a neurologist. And in approaching it, I say approach, as I shall never arrive, I do so with the hope that it will bring out enlightening discussion and because I am interested and delight in endeavoring to trace the effect to the cause. The eye picture is the effect of some intracranial cause.

So it is that I shall only touch the neurology of the eye from the high points of most interest to the oculist. The field is entirely too broad for an average oculist like myself to do otherwise.

It is true that most of us do not enjoy the advantages of a large experience with eye disorders that have lesions of the brain for a background; and as a result will never qualify as an expert; but surely it is a source of much pleasure and satisfaction to intelligently interpret the meaning of a choked disc, and altered visual field, a disturbed pupillary reaction, as well as a paresis of the extra-ocular muscles.

Choked disc, as you know, is a swelling of the nerve head, being of a gray red color. The physiological excavation disappears and the veins of the retina become large and tortuous, while the arteries appear small and straight. This picture calls attention to cerebral disease, usually a tumor of the brain. Double choked disc is not only met with in tumors of the brain, but in abscesses and sinus thrombosis as well, also in gumma and chronic syphilitic meningitis of the base. Choked

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

disc of one eye is usually caused by neoplasms of the orbit. Of course certain poisons, such as nephritis, lead poisoning and multiple sclerosis might cause bilateral choked disc, but as a rule, in these diseases, the picture is not so marked; the optic nerve head does not show the extensive swelling, but rather resembling that of an optic neuritis

It is unusual and difficult to accurately locate a brain tumor by the ocular picture alone because the various nerve pathways are too complicated for the most of us to master, but when we see a double choked disc we can safely conclude that a brain tumor exists in ninety per cent of the cases.

Visual disturbances occur early when the lesion is situated in the cerebellum or at the base of the brain along the optic tract, and, the choked disc is a cardinal symptom, it might not appear until late, as in tumor of the cerebrum.

As I said previously, it is not my intention to make an effort to definitely locate a brain tumor from the eye picture alone; I shall leave that to the neurologist, but after I have presented some facts regarding the pathology of the visual fields, the pupillary reactions and the extrensic muscles, I will try to show the picture as a whole, taking a case of mine for this purpose.

Since the optic nerves, from central origin to distribution, are usually in evidence from pressure from brain lesions, I shall give a slight resume of their anatomy, and also discuss the why of the hemianopsias

The optic nerves after leaving the orbits form the chiasm just above the sella turcica of the sphenoid bone. There is a partial decussation of fibres here which, when understood, explains the forms of hemianopsia. The outer fibres of both tracts do not decussate, but continue to form the nerve supply of the outer half or temporal

side of each retina. The inner fibres of both tracts cross at the chiasm, those of the right tract supplying the inner or nasal half of the left retina, while those of the left supply the inner or nasal half of the right; thus the right optic tract cares for the right side of both retinae and therefore, by the law of projection, of the two left halves of the visual fields; the inverse is true of the left optic tract.

Hemianopsia is defined as an absence of half the field of vision of each eye; hemianopsia is of two classes, heteronymous and homonymous. If the temporal halves of the fields of vision are absent, it is called a heteronymous bitemporal hemianopsia, and is induced by a lesion in the chiasm that effects only the decussating fibres. The binasal form of heteronymous hemianopsia is very rare as the outer sides of the chiasm must be affected before an absence of the nasal fields will be in evidence.

In homonymous hemianopsia either the right or left half of the field of vision of each eye is lost. This condition is caused by a lesion of one or the other optic tract between the chiasm and the occipital cortex. If the entire left optic tract is destroyed the temporal half of the left retina and the nasal half of the right retina is left without nerve supply; thus we have a homonymous hemianopsia of the right side. The same is true of a lesion of the right tract, excepting here we have a condition where nothing is seen to the left of the median line of the two eyes. A hemianopsia is complete when a vertical line passing through the fixation point of each eye divides the visual fields into a seeing and a blind half. It is incomplete when certain lesions do not completely destroy all of the fibres, and when the fields show partial symmetrical loss of vision. A lesion situated further up in the visual center of one occipital cortex might be the cause of a homonymous hemianopsia, and when so, we have a condition, even when the entire centre is destroyed, where in the

entire half of the common visual is not lost; this phenomena is know as the preservation of the *macula*.

I shall discuss briefly the normal pupillary reactions and some important disturbances of their innervation: the pupil either contracts or dilates and is motivated by the oculomotor through the ciliary ganglion and the sympathetic through the cilio-spinal centre. The reactions are involuntary and without consciousness. For our purpose there are three chief reactions; first, by the direct reflex reaction to light; second, by the indirect reaction to light; third, by the reaction of convergence. By the direct reaction, we mean there is a contraction of the pupil when a light is thrown directly into the eye; the indirect or consensual reaction is the contraction of both pupils when a light is thrown into one or the other eye; and by the reaction to convergence, we mean that on looking at a near object both pupils contract. The tract of the reflex contraction of the pupil begins in the pupillomotor area of the retina, thence to the optic nerve, optic tract and centre where communicating fibres carry stimulus to the nucleus of the oculomotor by which it is returned to the eye. The pupillary reactions alone can give no definite indication in the localization of a brain lesion, but there are three diseases wherein the proper interpretation of the pupillary phenomena are very characteristic. These are syphilis of the brain, tabes and progressive paralysis. Since I am only dealing with the brain, I shall say just a few words about the syphilitic pupil of brain origin. Syphilis of the tertiary variety seems to have a predilection for attacking the nuclei of the internal muscles of the eye, causing an absolute immobility of the pupil in one or both eyes. In an amaurotic immobility of one pupil there is some disturbance along the pupillary pathway which causes an absence of both the direct and indirect reflexes, but the reflex contraction of convergence remains. In an

unilateral amaurotic immobility, the pupil of the blind eye is larger than in the other. Both pupils are dilated equally when both eyes are blind. An absolute immobility of the pupil is recognized by an absence of all reflexes and is due to a loss of function of the sphincter. In a reflex immobility of the pupils, both direct and indirect reflexes are lost, but that of convergence remains; this condition is seen in tabes and is known as the Argyll-Robertson pupil.

When a patient presents himself complaining of seeing double, and a monocular diplopia has been excluded, you can conclude that a paresis of one or more of the extrinsic ocular muscles exists. The exclusion of a monocular diplopia is simple as the diplopia remains when one eye is closed, it being caused by a luxated lens, an incipient cataract or an iridodialysis. These conditions permit two images of the same object to be cast upon the retina. A diplopia due to a muscle paresis would be noticed by an impairment of mobility. In other words, there would be a deviation due to a lagging behind of the paretic eye. Then, again, the patient might complain of vertigo and a disturbance of orientation. The muscle or muscles involved can be analyzed by means of the double images.

I shall not bore you in an endeavor to explain the diagnostic value of pareses of the extrinsic muscles of the eye, nor will I try to group these pareses with the thought of localization of the causative lesion, but I would like to present a report of a case showing the eye picture that caused me to make a diagnosis of brain tumor. I did not attempt localization, leaving this to the neurologist; but as you will see he failed to localize the tumor.

I was called in consultation last October by another eye man to see Mrs. N. P., who gave the following history: She was a white woman of 42 years of age, a mother of six children and had had no miscarriages. About two years ago a tumor of the breast was removed, otherwise at this time she was enjoying very good health. I was unable to learn the nature of this tumor. A year after the removal of tumor she suffered

from pains in the knee and hip joints. Shortly after this she developed evidences of paralysis of the right leg, gradually showing a definite hemiplegia. At some time during this period she was advised to have her tonsils removed. This was done before she became helpless. No improvement was seen; in fact, her condition grew worse until she became bedridden. A Wassermann was made about this time with a negative report. My examination showed vision nil, both pupils dilated, no reactions, absolute immobility, very little movement of the globe in any direction, fundi media clear, but showing a well marked bilateral choked disc. There was no pain of any kind, but the patient showed beginning mental deterioration. With this picture there was no doubt about the diagnosis, a tumor of the brain probably of the base. It is possible that some of you could be more definite as to location, if so let us hear from you. But the neurologist to whom I referred her made this report which I will read. However, this report seems a little indefinite to me; seemingly there was no effort at localization:

"The summary of my examination is as follows: Right hemiplegia, which was gradual in onset and progressive; double choked discs; increased intracranial pressure, mental deterioration; blindness. Laboratory findings, including the spinal fluid, were negative. I made the following notes. It is my feeling that this is probably a metastatic tumor. Operation was not recommended.

There is no doubt that this patient suffered from a tumor of the brain, the exact nature of which was not determined. It may have been primary, but as you recall, there was a history of a breast tumor being removed a few years ago."

Dr. _____

DISCUSSION.

Dr. Bell: A number of years ago Posey and Spiller compiled and printed a very large volume on eye symptoms of nervous diseases. I gave this volume very careful reading after which I decided it was a little bit too deep for me.

The interpretation of eye symptoms of nervous diseases as given by the big men in the United States, say it might be this and it might be that. It does not help any when you get to read men who are leaders in the profession, and who tell us that some certain eye symptom may be found in some certain disease; the same symptom may not be present and the same symptom may or may not be present in any of a half dozen other nervous diseases.

Dr. Gaudet: The chairman here is a good friend of mine and I am glad to be permitted to discuss this paper. When he says we didn't come prepared he is right, and so is Dr. Bell. It

is rather difficult to present a subject without a little study. The fact is that 90 per cent of brain tumors are diagnosed by symptoms of pressure. From the image presented in the eye grounds you frequently make a diagnosis of brain tumor. We are convinced long before it appears because of the symptoms. We find symptoms such as a patient seeing double. Dr. Bruns reports that 75 per cent of these are due to lues.

In many of these cases we find a negative Wassermann reaction. Some of the patients have had treatment by neuro-psychiatrists. Whenever there is diplopia we suspect syphilis or neuro-syphilis.

We ought to show our appreciation to Dr. Chapenois by giving this paper free discussion.

Dr. Howard: I do not think it best. Dr. Gaudet ought not be allowed to get away. We are always glad to get Dr. Gaudet on the floor, but we know from our own general knowledge of things that when he got up he hated to get up so soon.

Dr. Champenois: Thank you, gentlemen, for your kind discussion.

I didn't prepare this paper as a neurologist. I wanted you to review an eye picture of choked disc.

I think that 75 per cent or possibly 80 per cent of these cases are infectious.

CONTUSIONS OF THE EYE.*

M. H. BELL, M. D.,

VICKSBURG, MISS.

Located in an agricultural section and away from the larger industrial and manufacturing centers, it has been my experience that contusions of the eye are seen more frequently than wounds of a penetrating type.

The agent causing the injury will be found to vary greatly, but is comparatively small in the majority of the cases. The injuries may be conveniently divided into those caused by bodies so large that the force of the blow does not reach the eyeball, but is expended on the orbital margins, or by a smaller body which strikes the margin of the orbit only and those where the eyeball receives the full force of the blow.

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

This is a practical division since contusions of the orbital margin may cause the well known "black eye" and subconjunctival hemorrhage causing much apprehension on the part of the patient and friends, while as a matter of fact the prognosis is entirely good. A very much less significant injury where the force of the blow is expended directly on the eyeball may be hopeless, in so far as recovery of useful vision is concerned from the beginning. It is most unfortunate that so many of these patients are children who have an eye injured in play and are deprived of useful vision in one or both eyes for life.

One of childhood's perennial games, that of "chunking" is responsible for many sightless eyes. The wounding agent is often most insignificant, a small stone, bit of hard dirt, ball, stick, anything the youthful hand picks up.

The air rifle plays its part and every year a few cases due to fireworks, roman candle balls, exploding firecrackers, etc., will be seen.

A very frequent cause in older patients is small bits of stalk thrown by stalk cutters.

I see more cases due to small bits of wood and chips from cutting kindling and wood than any other single cause and many cases of penetrating wounds come from the same cause due to sharp splinters on the bit of wood.

In the cases of slighter blows, which only cause injury to the cornea and conjunctiva with or without hemorrhage in the eyelid and under the conjunctiva, recovery will be rapid and complete.

Where the injury causes damage to the iris, ciliary body, choroid, lens, retina or optic nerve recovery will be slower and less complete and in many cases useful vision will never be recovered. When the injury is limited to the eyelids and conjunctiva it is often impossible to be certain that no further damage has been done, as many

cases will present so much swelling of the eyelids that it is not possible to make an examination of the deeper parts of the eye.

Prognosis must be guarded till the swelling decreases and allows one to make the necessary examination to determine the exact extent of the injury. The injury to the iris may be so minute that it is not detected at first, showing up later as a slight inequality and displacement of the pupil and it may be so great that the iris is practically destroyed.

Small radial tears at the pupillary margin of the iris always leave an irregular displaced pupil and a more or less complete paralysis of the iris movements. When the wound of the iris is at the attachment to the ciliary body or between that and the pupillary margin we will have a false pupil. These changes are permanent as the iris tissue does not heal as other parts of the body do.

Injury to the ciliary body, choroid and retina always leave permanent damage, the amount depending on the extent and location of the injury.

The usual lesion found will be a rupture with more or less hemorrhage and the blood will often make it impossible to locate the break for some time after the accident.

A fairly common result of contused wounds is the so-called "hole at the macula." These cases may present no discoverable lesion at the time of injury, in fact usually do not for some time, then at a later date an atrophy of the retinal fibers at the macula develops with loss of central vision permanent in character.

The lens may become opaque, a traumatic cataract, a result of some small rupture of the capsule in most instances but due to nutritional disturbance in some cases.

The treatment indicated in the minor injuries includes such measures as application of ice if injury is very recent, boric acid wash, one of the colloidal silver salts

and atropin in case the iris becomes inflamed.

In cases of injury of the pupillary margin of the iris the question as to the use of atropin will have to be considered. Theoretically atropin may increase the tear in the iris by dilating the pupil but the question is an academic one as it will be found necessary to use atropin to combat the iritis which will develop from the injury in most cases.

When the deeper structures of the eye are involved treatment will be along the same lines, as about all that can be done is to treat the inflammation following the injury.

The damage is done to the eye at the time of the accident and our only recourse is to try to prevent any further destruction by subsequent infection or inflammation.

By way of illustration the following cases are reported:

A white male, aged 17 years, was struck in the right eye by a small rock thrown with a "nigger-shooter" thirty minutes before I saw him. He stated the distance was about seventy or eighty yards so the force was not great.

Examination showed the left eye had standard vision and was normal. The vision in the right eye was perception of light only. There was a small central abrasion of the cornea, the anterior chamber was half filled with blood, a small tear in the upper outer pupillary margin of the iris and the iris was half dilated and fixed. The treatment consisted of cold applications and argyrol, but I had to use atropin within forty-eight hours on account of a beginning iritis. The eye cleared up rapidly and was entirely free of inflammation in three weeks.

One month later vision of 20/300 was improved to 20/60 with a minus 4.00 D. sphere. Fundus was normal.

Eight years later the vision was 20/60 with a plus 1.00 D. sphere. The iris was 2/3 dilated and immobile and there is a well marked central opacity in the lens which will almost certainly progress to a complete opacity. The left eye has remained entirely normal.

A negro male, aged 50 years. A week before I saw this patient he was at a wake and fell asleep

in a chair. Someone slapped him across the face to rouse him and they succeeded well. Vision was abolished in the right eye at once and he had been in great pain ever since injury. He had a complete anterior dislocation of the lens. The lens was removed without any great difficulty and the eye made a good recovery but no vision remained and at the last examination it was impossible to see fundus as the vitreous was still clouded enough to prevent a satisfactory examination.

A negro male, aged 16 years, was struck in the left eye by a baseball eight months previously. He declared the eye was never sore or inflamed following the accident, but during the following four months vision was gradually lost.

Six months preceding examination he was struck in the right eye by a green peach and the eye was slightly inflamed for a week. This cleared up and the eye was all right so far as he knew. Vision was gradually lost in this eye also. He has a cataract in each eye and vision equalled perception of light. The iris was normal and light projection was good. The left lens was needled and six weeks later the posterior capsule was opened.

At the last examination he had vision of 20/100 with a plus 5.00 sphere.

A white male, aged 12 years, was struck in the right eye by a dried china berry three days previously, thrown from forty feet distance. For twenty-four hours the eye appeared all right, a little sore but no other symptoms. Then vision was suddenly lost and intense pain developed.

The left eye was normal. It was questionable whether the right eye had perception of light. The anterior chamber was full of blood and the whole eyeball was intensely inflamed.

A very stormy month followed, marked by very severe symptoms, intense pain, a great amount of chemosis, and marked constitutional reaction, nausea, vomiting, fever, lasting several days.

Treatment was along the usual lines with a very grave prognosis.

One consultant advised immediate enucleation on account of the danger of sympathetic inflammation developing in the good eye. Another consultant in whom I have always had great confidence, advised that there was no immediate danger.

The eye developed one symptom that is extremely rare, the entire cornea was stained a light brown color by the blood pigment from the blood which remained in the anterior chamber so many weeks. In clearing, the cornea first cleared at

the margins, as is the rule, and gradually approached the center. This clearing process was slow taking thirteen months for completion.

At one stage I was certain that the lens was dislocated into the anterior chamber. The picture of the light brown center through which nothing could be seen and the perfectly clear narrow ring of cornea at the limbus had me guessing for weeks. The final result was a very good appearing eye with vision of 20/60 and the eye has been perfectly quiet for ten years. The left eye remains normal.

DISCUSSION.

Dr. Travis: I enjoyed Dr. Bell's paper. As to rest in contusions of the eye I will say that during my general practice we had some trouble with hit injuries. For instance, had patients who had pain from injury, but who would go around until the eye became inflamed. Then you could not tell what you had on the inside. If the patient is put to bed probably you can save the eye, but if he goes on to work the eye is lost. A strange thing, the eye generally doesn't hurt and goes out.

Last year I had three cases of contusions of the eye. The pupils were dilated and sight was almost entirely lost.

I had a case recently of a lumber hauler who drove under a tree, and was hit by a limb. He washed the eye out, and kept on hauling lumber. Then he came to me about two weeks afterward on account of a disturbance of vision. He could not see his fingers except in front and close to the eye. The eye rested under treatment and the vision was restored.

I have another case to report, the result of an automobile accident. The lid was hit on the outside and swelled. There was no break of the cornea.

A negro boy, about eighteen months ago had a whip with knots in the end. In an argument with a mule the whip backfired and hit him on the eyelid, and it swelled up. He went on two or three days and finally came in on account of pain. I dilated the pupil. A traumatic cataract had formed, and was perfectly white. I wanted to get some sort of fee, and planned to make arrangements for him to go to the hospital. After two months he came in. Inflammation cleared up, and the cataract was absorbed.

Dr. Johns: After hearing the excellent paper prepared by Dr. Bell, I want to discuss a case that came under my observation, a case of a little child. The family wanted to go over to the coast and spend the summer. The father and the chauffeur were on the front seat. The mother together

with the nurse and a little two-year-old child were on the back seat. Another car passed, a higher powered one, and in doing so threw up a lot of gravel. Some of the gravel hit the windshield and broke the glass. A piece of the glass hit the baby in the eye producing a cut of the cornea with protrusion of the iris. I thought iridectomy would have to be performed. I had the iris pushed in, and at the end of a few weeks under treatment the child made an uneventful recovery. The eye looks as if iridectomy had been performed.

With the modern conveniences now at hand wonderful things are being done.

Dr. Arnold: That case reminded me of one I saw two years ago in which a car struck gravel. Some of it was thrown up and hit the windshield and knocked out a piece of glass. The person was struck in the eye making a cut on the cornea.

This is the only case of the kind I ever saw.

Dr. Travis: With my long experience in Chattanooga there were many cases of injuries by penetrating wounds where we removed steel by magnets.

Some of them were contused wounds of miners of coal. These were the hardest cases we had to deal with on account of ulcerations. They gave more trouble and were a longer time curing up.

Dr. C. C. Buchanan: I had a man about forty years of age come in. He had been hit in the eye by a small knot off the end of a whip. The anterior chamber was completely filled with blood, and so I couldn't find a break in the cornea. We sent him to the hospital. Unfortunately he was in a ward with four or five other negroes. Two died that night and he left next morning.

The lumber people wanted a prognosis, and thought the eye might have to be enucleated.

He left town and was gone three months. When he returned he had had a complete cataract operation which left a good looking eye, but with very little vision.

All these cases, as in the case of the negro, are very interesting.

Dr. Bell (closing): Dr. Johns brings out the idea of rest. About as good a thing as we can do sometime is to stand by and look on.

In some cases the best thing to do is to enucleate because the eye is totally destroyed.

If we try to save the eye it will take months of treatment and, then, the eye often must be enucleated on account of the danger to the other eye.

Take the eye out, and in a week or two the patient is able to go back to work.

Of course, if he has a good appearing eye that gives no trouble I think it best to let him keep it even if there is no vision.

NASAL FRACTURES AND THEIR TREATMENTS.*

VAL H. FUCHS, M. D.,

NEW ORLEANS.

Nasal fractures, for some reason, have never been accorded the importance which they deserve, and it is only in the last few years that much has been written concerning their treatment. When we consider that the nose is the organ of respiration and olfaction, we must at once be struck with its importance. Again, from an aesthetic standpoint, the nose has always played a prominent part. In fact all methods of treating nasal fractures in the past were to obtain a pleasing aesthetic result, and all the true physiological functions of the nose were completely lost sight of.

To obtain a nice correction of an external deformity is always desired, but it should not be obtained at a sacrifice of any of the physiological functions.

For this reason alone, I believe all nasal fractures should be treated by a competent rhinologist and should be taken out of the hands of the general surgeon or family doctor entirely.

When we remember that the structure making up the nasal contour (nasal bones, nasal processes of the superior maxillae, the triangular and lateral cartilages and columella) are right under the skin, and that any irregularity of these structures will in time become very pronounced and produce a notable disfigurement, which time does not lessen, but on the contrary magnifies, we can more readily understand that a rhinologist, who is more intimately associated with the nasal structure, can better handle their fractures.

The nose, since it occupies such a prominent place on the face, is naturally more subject to trauma than any of the facial

bones. These fractures are comparatively frequent, and are not as rare as some of the text books would lead us to believe.

Roughly, nasal fracture can be divided into two classes:

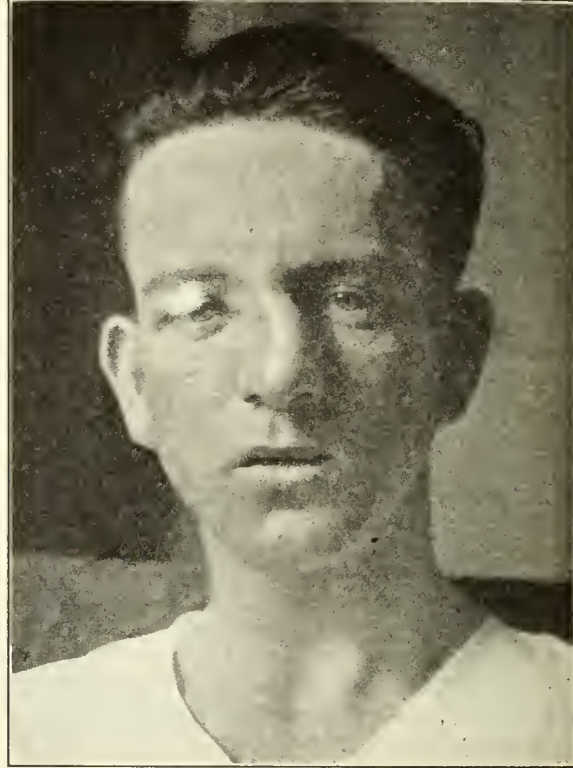


Fig. 1. Lateral displacement following nasal fracture.

Type 1—Lateral displacements, that is where one nasal bone is depressed and the other pushed out. These are caused by blows or injuries from the side, causing the nose to be displaced in the direction of the force of the blow. This can be strikingly brought out by drawing an imaginary line from the glabella to the philtrum, and the displacement to one side or the other is readily discernable.

Type 2—Sunken noses, which resemble the syphilitic noses and are caused by blows directly on the nasal bones. In this type the bones are either comminuted and depressed, or the nasal bones are so forced down that they override the nasal processes of the superior maxillae.

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

The symptoms are pain, swelling and deformity, accompanied by bleeding and perhaps crepitation. It must always be remembered that crepitation may often be elicited with gentle palpation, when a firm grasp determines little or nothing. Immediately after the blow is received, the deformity is visible, but it is soon masked by the swelling, which forms with very great rapidity, and it does not become obvious again until the swelling has passed away by which time the fracture has united and the deformity is fixed.

With a fracture of the nasal bones and their displacement, there is always associated a bending or fracture of the septum, either of the cartilagenous or of the osseous portion, or of both, and the septal lesion is frequently associated with the formation of a septal haematoma, which, like the external swelling, conceals for a time the presence of the septal deformity.

Fracture of the perpendicular plate of the ethmoid may be an accident of the utmost gravity if the force has been sufficient to cause fracture also of the cribriform plate, and the opening of the anterior cranial fossa.

The upper three-quarters of the nasal bones rest upon the perpendicular plate of the ethmoid, while the lower part rests on the cartilagenous septum. Fractures of the nose, luckily, most often affect the lower fourth, wherein the fragments are usually pushed backwards, but if the force is great, the cartilagenous septum will also be found bent, broken or even dislocated from its resting groove in the vomer or the maxillary ridge.

My line of treatment follows the technique as brought out by Lee Cohen some years ago. No longer is an attempt made to set these fractures without a general anesthesia. For a while local was used, but the procedure always seemed to cause pain, no matter how much care was used to produce good anesthesia. Nitrous oxide is the anesthetic of choice, and the patients



Fig. 2. Appearance of patient with splint and bandage applied.

receive so little, that it is possible for them to leave the hospital immediately after they react. Before beginning the anesthetic, a piece of ordinary writing paper is placed over the nose and a pattern made. This pattern is placed on a piece of 18 gauge copper sheeting and the proper size splint is cut out. The copper is then covered entirely with adhesive plaster, and moulded to fit the nose snugly, after the fractured bones are put in their proper position. The advantage of this thin copper, is that it can be readily bent, so that pressure can always be placed on the desired point.

At one time, we used dental compound, but it was discarded, for, in addition to its weight, it did not seem to give as satisfactory results as the copper. Again, at future dressing, it may be desirable to place pressure in a different manner, and this can be easily done with the copper splint, whereas it is impossible with the dental modeling compound.

As soon as the patient is asleep, a post-nasal pack is placed to prevent any blood running down the trachea. An Adams forceps is used, with one blade within the nose, usually covered with a piece of rubber tubing, and the other on the outside and the nasal bones can be manipulated and forced back into position very readily. When the fragment is displaced inwards, any flat metal elevator, of sufficient strength, will lift the bones outwards. The final moulding of the parts can be shaped with the fingers. Both blades of the forceps are placed within the nose, one on each side of the septum, and any irregularity or displacement is corrected by the proper movement of the forceps. It is our custom to place a small pack covered with vaseline or K.Y. jelly high up on the side where the depressed fragment was, so that there will be no displacement. At times, a small rubber tube can be placed along the floor of the nose so that the patient can breathe, and the pack

is placed above this. Usually, it is only necessary to pack one nasal cavity, and this pack can be left in for 5-7 days, when the first dressing is changed. It is always a good idea to overcorrect the deformity slightly, for the end results will be much better. An haematoma of the septum should be thoroughly incised and drained, and the entire nasal cavity painted with a 4 per cent solution of mercurochrome.

After the fracture is set and all packings are satisfactorily placed, the copper splint is lined with a few layers of surgical lint, properly shaped and applied to the nose. It is held in place by a strip of adhesive plaster, stretched across the nose, from one malar bone to the other. Areas are cut from the adhesive, around the eyes, so that there will be no obstruction to vision. Cross strips of adhesive are carried from the forehead, just above the eye, to the opposite cheek and more rigidity is obtained.

An abrasion or external injury of the skin surface is not a contra-indication to the splint. Sutures can be readily placed, but in these cases we cover the entire wound with a small square of gauze before applying the splint. The first dressing is made at the end of 5 days and the splint is worn for from 2-3 weeks, changing the dressing every 3-4 days, and after this the splint is worn only at night for about 2 weeks longer.

SUMMARY.

1. Set all fractures of the nose, as soon after injury as possible.
2. Nitrous oxide anesthesia is preferable to local.
3. Wounds of the skin, after thoroughly cleansing, may be sewed, and in no way contra-indicate the immediate application of the splint, when patient is seen soon after accident, prior to any infection.
4. Splint should be worn for 2-3 weeks.



Fig. 3. End results following treatment of patient shown in Fig. 1.

DISCUSSION.

Dr. Jno. T. Crebbin (Shreveport): Dr. Fuchs has certainly obtained excellent results in the cases which he has presented. I wish to emphasize an important point brought out, that is, all work of this character should be referred to a specialist if at all possible, for one conversant with diseases and injuries of the nose is more competent to treat these patients.

It is true, that frequently it is impossible for a specialist to see these patients first. If this be the case, the injury should be repaired by the most convenient doctor, and then the patient should be examined by a specialist.

One should always bear in mind that these injuries and deformities have a tendency to become worse.

Possibly we are seeing more of these cases than heretofore, due to reckless automobile driving. Many of these nasal injuries are due to one being thrown against the wind shield, quite a few resulting in injury and lacerations to the nose and face. It is in these cases that we find the most difficulty, for it is almost impossible to apply the external splints as outlined. Fortunately, healing takes place very rapidly.

A patient is always conscious of an external deformity to the nose and unfortunately every one notices it, also, but the most serious complications are that there is almost invariably a deviation of the nasal septum, which may press against the turbinate bones, interfering with ventilation and drainage. This is but another argument for a specialist to treat these cases.

Nasal splints within the nose should never be used if it is at all possible to do without them.

Dr. Rufus Jackson (Baton Rouge): I do not want to assume a controversial attitude nor say anything that would bring on any such impression, but I do want to take a half-hearted exception to the stress that the gentlemen preceding me have laid to the idea that specialists alone should deal with these cases. I think that should be qualified, with a little more stress on what Dr. Crebbin said, that, wherever possible or practicable, the specialist should care for these cases.

A great many of these cases are seen by some of you gentlemen who cannot get them to a specialist, and if you would try to send them to a specialist, they would go home and try to clear up, itself. Those are the cases that give life-long deformities, because that same man or woman will not go later and have a correcting operation, requiring a rebreaking of the nose and taking out a great deal of the septum which has held in a

distorted position, and, for that reason, I would like to direct a few remarks to the practical correction of these deformities immediately or as soon after accident as possible, by even the general practitioner.

If you have on hand some sort of an instrument, preferably of the type that we use as an elevator, which is almost as thin and sharp as a knife, you can use that for every nose you have, and I say an elevator, I mean the submucous elevator, it should be straight. In that way, you can get that into the nose of the smallest child, and to prevent cutting, you can bind about it or wrap about it just that amount of cotton which you desire to give you the proper thickness which you like. Now, anybody can observe this technique or practice this technique, because if your wrapping is too thick, your instrument will not go high enough. You measure from the outside to see how high you are going.

Now, the rationality is this: A fracture of a nose is a simple affair, because of the too overlapping nasal bone, no matter if you have a portion broken out or have the whole outfit broken, if you take the elevator and life up and press back, I should say that 90 per cent of them will go in position and remain so without a splint.

I would accentuate to the specialist or the general surgeon, because the general practitioner would not be inclined to put a packing there, but I would accentuate to the surgeons, do not put splints or excessive packing inside the nose, because, if you do, you get a pushing out of the nasal process or superior medulla, and that tends to give a broad, thick nose. In other words, we found in Moser's Clinic in Boston that all the outside dressings were a snare and delusion, and only when we were trying to make an outside dressing that would give a correction, we would overlook the fact that we had not prepared ourselves.

The old nose that has been fractured and put in position, stays in position and requires no dressing on the outside and none inside, except perhaps one very sharp wire splint to hold it up. So, a fresh fracture, in at least 90 per cent of them will require no packing on the inside and no dressing outside. That is left to the conscience of the general practitioner or the general surgeon, whether he gets these cases to an ear, nose and throat man to have them cared for and checked over after it is done, but the thing I want to make a plea for is that portion of our population that is going to be difficult for you to get to a specialist, even though one is available. Don't feel that your duty to that man's nose is discharged, or your obligation is discharged, until you have corrected it, because it is a very simple

statement of affairs and not as important as a fracture around the elbow joint, and some of you, at least, still attempt those.

Dr. J. A. Carruthers (Baton Rouge): Dr. Fuchs' explanation and method of treatment are identical with the experience I have had, and I use practically the same instruments that he uses. This instrument is from the old Ash set, and that is what I use always. The only difference in my technique and his is that I have never had occasion, yet, except in one instance, to use any support after the operation; they nearly always stay in place if they are put back in place as soon after the accident as you can get ahold of them.

The doctor's conclusions were the same as I have found, with the exception of the dressings; however, they are a wise precaution.

Dr. N. F. Thiberge (New Orleans): Before the discussion is closed, I would like to ask the doctor to specify the time for the external splint to be kept on. We know long bone fractures require a longer time, but I understand with the nose, not so much time is required, and I want to know what is his practice in leaving the splint on a certain number of days.

Dr. Fuchs: About infections on the outside. When you have an injury on the outside there is no contraindication to putting on a splint. These cases are seen before infection takes place, and there is no danger in putting on the splint, because those injuries clear up very rapidly. I remember a man going through the windshield of his automobile, about eight months ago, and the glass cut through, dividing the nose into an upper and lower half. The cut edge was sutured, and you cannot see a scar. In fact, Dr. Carter, of New York, is authority for a statement that, many years ago, in one of the foreign countries, one of the punishments for the prisoners was to cut off the nose. They found it was not a good punishment, because as soon as the nose was cut off, the prisoner would pick it up and have somebody sew it on, and collateral circulation was established and the deformity was avoided.

If any of you men have had the experience of removing a rhinophyma from the nose, you know what the blood supply there is, and what hemorrhage you get. In fractures of the perpendicular plate, about putting it in packs: I would not use a pack where there was a fracture of the perpendicular plate, I would rather have free drainage than putting in a pack. When speaking of packs, I do not mean putting in large packs, we use a very, very small pack, and that small pack is high up and just to hold that one bone in place.

When we are talking about not putting on splints, I went through that period of not putting on splints, but patients can turn over in bed, during their sleep, and get that fracture out of position. We have seen it happen, before we used splints, and it is such an easy thing to put on a splint and wear it that way, we do not hesitate to do it, and we let it on about two or three weeks, constantly changing it every third or fourth day. It is not necessary to keep the splint on as long as it is on the long bones, you have nothing to pull the fragments away, there is no muscle displacement, as there would be in long bones.

About these cases going to the specialist instead of the general surgeon: I would say, let the general surgeon do it, if he knows how to use the head mirror properly. You say you tell them to go to the specialist and they won't go. What is the difference of having them go now or later? Unless a man is capable of using a head mirror and seeing what deformity he has of the septum, he better send them to somebody else who can use it. I think that answers all questions.

A PLEA FOR THE SELECTION OF THE PARS MEMBRANACEA IN PUNCTURING THE MAXIL- LARY SINUS.*

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The object of this monograph is to enlist and to stimulate more interest in the selection of the middle meatus through the pars membranacea when there is sufficient evidence or cause for puncturing and irrigating the maxillary sinus.

In the selection of this route the author was prompted by a desire to minimize pain, to lessen shock and to cause less trauma and subsequent edema and inflammation which necessarily follows the use of a trocar in antrum puncture and to allow early use of irrigation following the operation, which is painful and often delayed when the inferior meatus route is selected.

The writer's experience in over one hundred cases dates back more than two years,

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during which time only two failures were recorded, due to deviated septa.

It is not the purpose of the essayist to lay claim to priority or originality in this article, merely to contribute and to publish my experience, use and findings of this route. Killian and his pupils have used this method for years without accident.

Hajek, in his latest text book, says he uses this method in cases of mild chronic empyema of the antrum in old persons in whom a greater interference could not be undertaken. Eicken's needle for puncture through the pars membranacea has been used by him for years without accident.

Fletcher's trocar needle, which is made at an angle of forty-five degrees for use through the pars membranacea, is being successfully used and does away with all fear of accident.

Siebenmann was one of the first to make use of this route, using a blunt cannula.

Kirbo also used the same method, claiming in his experience a large opening made in the pars membranacea has a tendency to remain open permanently. My own experience bears out the latter's statement. Onodi makes use of this route and enlarges his original opening by dilatation.

Zuckerkindl has designated the pars membranacea of the middle meatus as that point at which the maxillary antrum may be most easily opened on account of its thinness.

Brief anatomy of the middle meatus: The middle nasal passage includes that portion of the lateral nasal wall lying above the inferior turbinate and below the bulla ethmoidalis and the posterior attachment of the middle turbinate.

It is, therefore, bounded, anteriorly, by the bulla ethmoidalis; above and posteriorly, by the attachment of the middle turbinate; externally, by the uncinate process, hiatus semilunaris and pars mem-

branacea and below, by the attachment of the inferior turbinate. Internally it is bounded partially by the middle turbinate and the nasal septum and in front it opens into a broad portion of the nasal cavity, called the atrium of the middle meatus, which opens into the posterior portion of the vestibule. In brief, the middle meatus is situated between the attachments of the middle and inferior turbinates, in front by the vestibules of the nose and extends back to the attachments of the turbinates. The lateral wall of this meatus can be satisfactorily studied only after the removal of the middle turbinate.

Descriptive Anatomy of the Pars Membranacea:—The pars membranacea is the thinnest portion of the internal wall of the maxillary sinus, and without any bony structure in its construction. In the skeleton the space occupied by the pars membranacea is always present. In the recent state, however, this defect in the bony structural development is replaced by the mucoperiosteum of both the nose and the maxillary sinus in the following manner: The mucous membrane and periosteum of the nose are so intimately interwoven that it is almost impossible to separate them, consequently they form a continuous covering for the osseous structure beneath. This membrane in the region of the uncinate process does not dip down into the empty spaces, but bridges them over, thereby forming an unbroken wall, except in one small space between the posterior third of the uncinate process and the bulla ethmoidalis, where an aperture is constant (ostium of the maxillary sinus).

Precisely the same condition prevails in the lining membrane of the antrum, and, as a consequence, we have the spaces around the uncinate process covered in by two layers of mucoperiosteum, thereby completing the partition between the nose and the maxillary sinus. This part of the nasal wall is known as the membranous portion (pars membranacea) and is of surgical importance on account of its being

the thinnest and most resilient part of the wall.

Boundaries of the Pars Membranacea:

Above: By the bulla ethmoidalis.

Behind: By the palate bone.

Below: By the insertion of the inferior turbinate and in part by the uncinate process, thereby enclosing the posterior portion of the uncinate process in its boundaries.

The literature and text books report many accidents from puncture through the inferior meatus. Butt reports severe hemorrhage. Some authors report air embolism; Skilleren, Claus, Halle, Hajek, Ballenger, Phillips, Hays, Loeb, Gleason and others report accidents from this route. Most rhinologists avoid puncture through the middle meatus because of an occasional anomalous relation to the orbit, in this anomaly the experienced rhinologist should not be concerned since the depth of the middle meatus may be previously determined by rhinoscopic and skiagraphic examination. The danger of puncturing the antrum through the middle meatus is injury to the orbit and its contents. One may dispel any fear on account of selecting the middle meatus over the inferior method as the middle meatus route is only about one-eighth of an inch higher and the attachment of the inferior turbinate, anatomically, is so placed that it almost divides the partition (lateral nasal wall and antrum) into equal partitions. The previously mentioned authorities and their experiences should be sufficient proof and evidence for others to use the middle meatus route. Fletcher's angular needle and the author's trocar make it almost impossible to have an accident.

Technique: Bearing in mind the natural difficulties, it is at once evident that lack of space is the chief cause of our inability to successfully carry out this procedure. In order to more fully appreciate the area through which the surgeon in-

troduces the trocar into maxillary sinus, and to locate and identify the pars membranacea, it is necessary to first draw an imaginary triangle; we proceed as follows:

Draw an imaginary vertical line from floor of frontal sinus (a) (about where frontal-nasal canal should be) to anterior attachment of inferior turbinate; (b) then draw a horizontal line parallel to the attachment of the inferior turbinate to its posterior tip; (c) then draw a vertical line up to cribriform plate of ethmoid bone; (d) then bisect this square or draw another line from (a) to (c). The surgeon should find the area or pars membranacea at the apex of this triangle A-B-C.

The author offers this triangle to the profession, feeling that it will be of material help in locating and identifying the pars membranacea.

To obtain as much working and eye space as possible and at the same time anesthetize the parts so they will be insusceptible to pain, a 10 per cent solution of cocaine hydrochloride with several drops of 1/1000 solution adrenalin chloride is applied over inferior turbinate and area of pars membranacea; after a pause of sufficient time the operator should identify his landmarks and the operation should be undertaken, special care should be exercised in thoroughly cocainizing and shrinking of parts, a good view is necessary for the success of the operation. The surgeon should be skilled and experienced; use a heavy applicator wound with a thin layer of cotton for exploring the field (pars membranacea), as this area can be felt and outlined before use of the trocar. When the surgeon is satisfied, he may proceed with the use of the trocar, care being taken as to the amount of force used and the direction of the trocar. The author advises that the direction of the point of the trocar should "always be downward", (elevate arm and produce one-half circle)—"force is positively to be avoided"—remember that one is not puncturing osseous, but membranous tissue. After successfully puncturing the

antrum, remove the trocar and use the sound, then proceed to irrigate the cavity. Have the patient use a piece of cotton in the nose for several days, no other after care is usually necessary.

Before closing, permit me to exhibit the trocar used and recommended by the author in over one hundred and eight cases. It is light in weight and durable, with plenty of length to the shank, but with a very small curve, the distance (about three-eighths of an inch) from shank to tip of the trocar makes it exceedingly safe in puncturing the maxillary sinus through the middle meatus.

ARTHRITIS.*

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It is well for us to refresh our minds occasionally upon the classification of the types of arthritis and the interpretation of the signs and symptoms encountered.

The proper treatment to be instituted will be more certain in its results if more care is given in making an investigation of the causes of the joint inflammation. Despite the large amount of research and investigation done upon this subject, it remains a perplexing problem for all concerned in its diagnosis and treatment. The diversity of opinion held by investigators and all responsible for its treatment is tantamount to the perplexity of the problem.

Probably the types best understood and most easily handled are those classified as acute metastatic or pyogenic infections, secondary to an easily demonstrable focus, usually acute tonsils, proven apical abscesses, acute gonorrhea, etc., etc. The clinical symptoms are those usually encountered in inflammatory reactions, such as, acute onset, general malaise, moderately high or high temperature, local redness, heat, swelling and tenderness. It is frequently polyarticular but often monarticular. Progressive or alternating

monarticular arthritis, soon locating in one major joint, always suggests gonorrheal origin.

General elimination, established "anti-rheumatic" sedatives such as the salicylates, aspirin, oxyl iodide, etc., etc., frequently controls the symptoms while the infectious focus is being searched for and frequently is found. Its removal, followed by rest, methods of physical therapy, consisting principally of heat and very careful orthopedic massage, prevention of deformity, in case of structural damage, generally offers satisfactory relief.

In acute monarticular involvement, especially gonorrhea, or the polyarticular type in which a major joint stands out in most acute distress, aspiration should be practiced. If a cloudy or turbulent fluid is recovered, which under the microscope reveals many pus cells, free incision of the joint, associated with copious lavage of the joint cavity with several gallons of saline or 1-20000 bichloride solution, will prevent many a stiff joint. It is best in such cases to suture the joint capsule to the muscular structures, closing only the skin. This permits drainage into the tissues and possibly an autovaccination. Extension on the affected extremity with very early passive and active motion assures preservation of function.

The above mentioned acute type often becomes a subacute condition under inactive, indifferent or improper attention. The patient establishes a certain amount of tolerance or immunity to the pyogenic infection or the invading organism is of moderate virulence. Sedatives only may have been given instead of prompt eliminative treatment and eradication of the offending focus of infection. There is soon no redness of the affected joint or joints and the swelling abates to some extent along with the lessened pain and disability. The patient and doctor are somewhat encouraged and experience a false security thinking the condition will soon clear up entirely. A persistently sore, moderately

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swollen joint or joints persist with a slight general reaction in the form of temperature. When such cases are seen, several weeks after the onset, more or less structural damage has taken place in the joints, making the problem more complex and the prognosis less favorable. The treatment must follow that mentioned in the acute type, namely, very active systemic elimination, immediate removal of all the foci, including the offending focus of infection, associated with various forms of physical therapy, primarily heat, intelligently applied orthopedic massage and gentle manipulation of the affected joints. Existing residual deformities should be carefully corrected and proper weight bearing and functional lines and positions maintained.

Other conditions, such as, tubercular, syphilitic and gouty arthritis, are subacute when seen by the family physician, disguising their true seriousness unless carefully studied and accurate diagnoses made. Each one of these conditions, if passed on to the orthopedist, requires special, prolonged and persistent treatment, as they have passed into the chronic stage when seen by him. Each condition deserves more than the few cursory remarks that are here given to them. They are, however, well recognized clinical entities and their diagnosis often more certain than the complex problems presented by the truly infectious or toxic arthritides and the debatable atrophic and hypertrophic varieties which are the topic of this discussion.

The truly chronic varieties of arthritis include those whose cause and origin are most debatable and whose treatment and cure are most complex. I refer first to the so-called metabolic arthritis, or most commonly known, as osteo arthritis or hypertrophic arthritis. This type of joint lesion seldom occurs before the age of 40, or that age when metabolism is disturbed, the intake of food remains unchanged but the elimination of body waste slows up and the methods of living become more sedentary.

Glandular activity takes on definite changes and excess weight indicates the ingestion of more food than the body economy demands. This failure of rapid elimination, together with frequent trauma, whether occupational or not, offers a rational theory of the origin of this type. (Painter).

This variety of arthritis is quite characteristic and consistent in the involved joints in the different sexes. Spines and hips are the most frequent sites of the lesions in men, whereas, the knees and fingers are most frequently affected in women. Greater trauma and stress takes place in these joints mentioned, as is seen by the activities of the sexes, whether occupational or otherwise. This joint involvement is essentially chronic in its onset and course. It appears insidiously and without constitutional symptoms. There is no temperature rise, no local redness and rather thickness of the periarticular tissues and bony enlargement instead of usual swelling. The patient feels as well as ever generally but one or more joints are painful and the activity of the same is interfered with. Permanent deformities of a moderate degree occur in the form of slight flexion of the joint, produced by the overgrowth of bone (Heberdens nodes) along the joint surfaces. The roentgen-ray findings are characteristic and show the overgrowth of bone along the joint surfaces as a spur formation or lipping of the articulations.

In considering the truly chronic varieties of arthritis, I refer, in the second place, to the atrophic or nutritional type or, the correctly called, arthritis deformans. The lesions which characterize this joint inflammation are far more common in women than in men. As Dr. Painter has so aptly remarked, "the conspicuous etiologic suggestions which one meets in many patients, suggestions which fit in well with the character of lesions which characterize this arthritis, are a history of nervous shock, or more often from an accumulation of nerve trying circumstances. Child bear-

ing, particularly when this has been of frequent occurrence and with but little time between pregnancies, seems capable of setting the stage for this variety of arthritis. The wear and tear of life bears more heavily on some than on others and doubtless a lower threshold of nervous stability may have something to do with permitting the annoyances and physical hardships of life to crowd in upon those so constituted than upon others." The age incidence of this type of arthritis indicates that it occurs during the early adult period, *i. e.*, 30 to 40 years. Occasionally a similar syndrome occurs in childhood, namely, Still's disease. It is seldom accompanied by constitutional symptoms, such as, temperature, anemia, malaise, etc., which characterize the acute or subacute infectious types, especially in the early stages. It is always polyarticular and it seldom attacks the terminal phalangeal joints, which is so characteristic of the hypertrophic type. The hands, wrists, knees and ankles are the joints most frequently selected for this disabling invasion. The joints do not show typical inflammatory swellings but thickening of the soft parts, producing a fusiform enlargement of the joints and the glistening skin drawn over the bony shafts. There is at first slightly increased surface temperature and soon various deformities occur due to muscle spasm and subluxated joints, as abducted fingers and wrists. There is general atrophy of skin, cartilage and bone, even including the nails. Eroding cartilage and periarticular pannus produces moderately severe pain and much disability.

The roentgen-ray findings are quite characteristic. There is general bone atrophy, with narrowing of the joint spaces due to the thinning of the cartilage. Ankylosis takes place upon complete erosion of the articular cartilage.

While an attempt has been made to simplify the classification of arthritis, there are many cases which are difficult of classification, rendering diagnosis and adequate treatment even a greater problem.

Treatment of any of the varieties of arthritis offers an opportunity for the medical attendant to show his adroitness in making the diagnosis and requires the institution of sound therapeutics. Too careful a study of each individual case seems impossible. One cannot go into too much detail in taking a history of the onset, the progressive development of the lesions and the distribution of the joints as they become involved. All possible foci of infection should be cleared up as promptly as possible, whether they have been found to have a direct bearing upon the joint lesion or not. It is a mistake to eradicate possible foci of infection until they have been proven a menace. I have particular reference to the extraction of teeth indiscriminately and the removal of unoffending tonsils, gall-bladders, appendices, etc.

A most careful examination seems of greatest moment in these cases, as it will require the greatest amount of persistence and ingenuity to find the cause and apply the proper treatment. It is often the case that the urine, feces and blood have been properly and frequently examined, but the findings have not been intelligently interpreted, therefore losing an important factor for diagnosis. Too little significance, for example, is given to the simple test of indican. A clue for treatment may depend upon just such a test.

Any examination for arthritis today is incomplete without a careful roentgen-ray examination of the intestinal tract and visualization of the gall-bladder. Does an intestinal stasis in the small or large intestine exist? Is the colon spastic, does a colitis exist? These are important questions to have answered for an arthritic, probably equally as important as the roentgen-ray findings of the joints themselves.

After the infectious foci have been investigated and the offending focus removed, the infectious or toxic arthritis, as far as treatment is concerned, becomes a problem similar to the other varieties of

arthritis. General elimination is begun in the form of "cabinet baths," a larger intake of fluids, free purgation and colonic flushes. In the past too little attention has been given to the value of these irrigations with a rectal tube and a large quantity (2 gallons) of saline solution. They should be frequently repeated, once daily for ten days to two weeks, then every second or third day for several weeks longer. It is found that, even after several weeks of quite active purgation and daily colonic flushes, very ancient material is recovered from the intestinal tract. It is not surprising, therefore, that such material furnishes sufficient toxemia to produce joint inflammation.

If the gastro-intestinal roentgenograms have revealed a stasis in the small intestine and a spasticity in the large intestine, carefully thought out medication will bring the desired results. The saline purges, fluid extract of belladonna, the salicylates, bromides, etc., all have their place. The gastro-intestinal specialists offer us the necessary valuable help in encouraging the intestinal tract to properly eliminate its toxic contents.

The addition of the various so-called antirheumatic sedatives, previously mentioned, are valuable aids in temporarily relieving pain. Probably the most prominent and efficient among these are aspirin, atophan, oxyl iodide, etc., etc. Guaiacol carbonate in large doses (10 gr. to 20 gr.) over a long period of time is of very great value in the cases of hypertrophic arthritis. In fact, in moderately severe cases it frequently acts almost as a specific in allaying the symptoms.

The gastro-intestinal roentgenograms often reveal to us the existence of a visceroptosis, a condition which so frequently exists in those patients suffering with arthritis, especially the nutritional or atrophic type. The mechanical correction of this visceroptosis, by means of well established lying, sitting and standing posi-

tions, corrective exercises, braces, corsets, etc., often play a much more important part in the relief of the arthritis than one would at first think. Many of these mechanical measures can and should be carried out even after the patient has become more or less inactive.

Local treatment of the joints involved concerns itself first with the prevention of deformities. If tendon contraction and muscle spasm are beginning, the application of moderate extension and night splints, and, in advanced cases, retentive plaster casts and braces become necessary. The local application of the various forms of physical therapy, especially heat, is distinctly indicated. The engorgement of the affected parts with blood promotes elimination, assists in the prevention and absorption of fibrous tissue and relieves pain. Carefully applied orthopedic massage and gentle manipulation, which should usually follow the application of heat, further promotes elimination, prevents deformities and assures joint function.

The indiscriminate, and I believe improper, use of many of the modalities of physical therapy is to be deplored. It is unfortunate that use is made of many pieces of apparatus when the operator is not qualified by training or experience. Many of these modalities which have real value are becoming unpopular and confidence in them lost because of such misuse. This not only applies to the purely mechanical devices, but also to orthopedic massage, proper manipulation and passive motion. Trained workers are scarce and such work done by the untrained and inexperienced is fatal to the cause of physical therapy, a proven aide to those suffering from various joint diseases.

Recapitulation.

1. After many years of research and clinical study, it has been demonstrated that there are three varieties of arthritis (Painter) (a) the infectious or toxic, acute in type usually. Distributed equal-

ly among males and females, having no choice in the joints involved nor the age of the individual. Generally due to a readily demonstrated focus of infection and characterized by the recognized clinical signs of acute inflammation. As a rule cleared up by removal of the existing focus or foci of infection, general elimination, mild sedatives and physical therapy.

(b) The metabolic type, commonly known as hypertrophic arthritis or osteo arthritis. Seldom occurring before the age of 40, when the body metabolism is becoming less active and trauma has been more constant. Common to both sexes, occurring most frequent in the terminal phalangeal joints and knees of women and the spines and hips of men. Characterized by absence of acute inflammatory reaction but stiffness and painful joint or joints. Roentgen-ray findings typical, showing overgrowth of bone along the articular surfaces as spur formation. Relieved by correcting metabolism, clearing up existing foci of infection, and physical therapy with moderate fixation of the part involved. Guaiacol carbonate in large doses over a long period of time is very helpful. (c) The nutritional type, commonly known as atrophic arthritis or arthritis deformans. Most common in women of early adult age (25 to 40). May be due to frequent nervous or psychic trauma, many nervous shocks, frequent child bearing experiences, etc. May also occur in children as Still's disease. Essentially polyarticular and most frequently attacks the interphalangeal joints, hands, wrists, knees and elbows and hip. Usually without typical symptoms of acute inflammation but more thickening of the periarticular structures with pain and, in the advanced cases, ankylosis of the joints due to erosion of cartilage. Roentgen-ray evidence shows bone atrophy throughout and narrowing of joint spaces. Relieved by clearing up all foci of infection, general elimination, local application of physical therapy and "antirheumatic" sedatives. Mechanical correction of visceroptosis and local correction of deformities.

2. In referring to clearing up foci of infection, particular attention is directed to greater care in investigation and especially to intestinal absorption. Renewed interest in colonic lavage and general intestinal elimination is justified.

DIGITALIS.*

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Digitalis belongs to the Scrophlerlarea-ceal or Figworth family, a group of bitter poisonous plants indigenous to central and western Europe. It will grow in the northern and western part of the United States. It thrives best in sandy soil without lime. The cultivated plant is about the same strength as the wild plant.

"It was only toward the middle of the last century that any headway was made in the diagnosis and treatment of disorders of the heart. Morgagni and Senac were among the first to study the structure of the heart and its disorders; the irregular and intermittent pulse, asthma, and edema of the legs were hitherto attributed to disorders of the lungs."

Various remedies were used until Wiliam Withering gave to medicine a new remedy, digitalis. As early as 1542, Leonard Fuchsins discovered its use and attributed to it emmenagogic and cleansing properties. It was regarded as vulnerary by Gesner, as a purgative by Lezel, as a specific for epilepsy by Parkinson.

In the middle of the seventeenth century it was admitted to the pharmacopeia of London but soon disappeared. At the opening of the eighteenth century it appeared in the pharmacopeia of Wurtemberg, and in 1721 reappeared in that of London, but so many grave complications were blamed on its use that in 1746 it was banished from all foreign pharmacopeia except the French. It was, however, very seldom used even there.

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William Withering, botanist, chemist and mineralogist, was attracted, in 1773, to the use of digitalis for the treatment of dropsy by the old women in the country. His first observations were reported in 1779 and in 1785, he published a book on the indications and effects of this plant. He found it to be a powerful diuretic, and it had an action on the cardiac contraction which no other drug possessed in the same degree. He advised giving the drug until it acted on the kidneys, stomach, pulse and intestines, and to stop its use at the first appearance of these effects. So it was Withering who by long and methodical observations proved the marvelous merits of digitalis.

Other authors noted that the vigor and force of the pulse, under the effect of digitalis, was augmented in proportion to the absorption of water, and also that digitalis acted as a diuretic only when there was dropsy.

It was not until about 1840 that the value of digitalis in heart conditions was truly recognized.

Debreyne in his work on therapeutics remarks that dropsy is relieved by combining diuretics and purgatives, and frequently prescribed pills containing digitalis. In this way he brought it back into use. He found that digitalis was useful in dropsy only where the dropsy was due to a heart condition.

EXPERIMENTATION AND PROVING OF DIGITALIS

In order to understand more fully the effects of digitalis and just how such effects are brought about, let us review the results * * * noted by Meyer and Gottlieb and of a great many other experimenters.

They use frogs, guinea pigs, cats and mice mostly. By giving lethal doses of digitalis to frogs, the heart would be arrested, the ventricle in systole and the auricle in a state of diastole. The frogs would continue to hop around several minutes after the heart had stopped beating. This is intended to show that in

the frog at least it did not affect the nervous system. But the experiments upon mammals show that even in small doses it does produce an inhibitory effect upon the vagus nerve center, the larger doses produce the most profound effect upon the heart muscles and still larger, upon the vomiting center of the brain.

If we observe the exposed heart of a frog after the injection of a full poisonous dose, in a few minutes diastole appears larger and somewhat longer in duration and less frequent. The energy of contraction is increased, the ventricle becomes paler at the center of contraction and empties itself more completely. Later comes the diastolic pause. The still further effect shows the marked irregularity, then the systolic contraction occurs in spots. Not all parts contract and relax at the same time. The blood is forced back and forth in a peristaltic fashion until the ventricle is finally arrested in systolic contraction and empty while the auricle contracts for a time and is arrested in diastole.

That this arrest is not a paralysis and that the heart will beat again is proven by injecting fluid forcibly within the cavity which brings about another contraction. If digitalis is given only enough to arrest the heart in systole, the auricle will again, after a short pause, begin to beat, and this is followed by slight action of the ventricle, and again, later, peristaltic action of the heart and a gradual return to normal beat, the different phases appearing in a reversed order of their onset.

How do we explain this ability of the heart to extricate itself from the power of this mighty drug? In the first place, where is the drug that produces this effect upon the heart muscles and perhaps upon the nerve mechanism of the heart itself? We believe that it has been proven that the drug has united itself with the muscle and nerve tissue of the heart itself. If this is true, how does the heart rid its tissues of the poison? What becomes of this drug that is united with the tissue cells? It has

been found that the heart will free itself even in the animal with kidneys and intestinal tract detached, thus, we think, proving that the heart detoxicates itself either by expulsion from its tissue the elements of the drug or by metabolism destroys these elements in the tissues.

A word as to the vagus center. Rothberger and Winterberg claim that there is a more sensitive state of the vagus center produced by this drug. Again, it may be claimed that the effect upon the vagus center may be brought about by a greater volume of blood sent through this nucleus. However this may be, experiments have proven that a heart perfused with digitalis, after section of the vagus nerve, will show the same increase in length and strength of ventricular systole and the diastolic pause.

Again, it seems that in certain diseased states of mammalia the increased sensitivity of the vagus center seems to exist as a result of the disease (possibly from retained toxins) and probably account for the more profound action of digitalis in some diseased conditions where the nerve center is already sensitized by intoxication.

Why do we say that digitalis may combine with the heart tissues? In consequence of great affinity of heart tissues for digitalis, the glucosids appear to be withdrawn from the media perfused through the heart and stored in the heart tissues. This is proved by the solutions so used losing their digitalis effect after the passing through the heart. Again, if we inject intravenously the drug into the mouse, the poisonous effect of the drug lasts long after the drug has disappeared from the circulatory blood.

Still further proof of the union of the drug with heart tissue is from the fact that, after perfusing a heart with digitalis solution, the effect upon systole lasts long after the digitalis is removed from the solution and again when the poisoning is incomplete, a solution free from the drug may be used and repeatedly washed through the

heart, which continues to show its partial poisoning.

Again, it is proven that this same heart is more easily poisoned a second time. Again, the union of digitalis with heart tissue is so firm that no investigator has succeeded in removing any part of it by chemical methods. The ability of the heart to rid itself of the non-lethal dose of digitalis appears to depend upon the power of the body to destroy the said poison by acts of katabolism. We thus can explain the persistence of the effects of digitalis and a heart once digitalized will detoxicate itself at a certain rate and daily additions of the drug must not be greater than the amount thus disposed of by the heart. The digitalis group does not show an equal accumulating quality. Strophanthin is the most evanescent, while digitoxin is more inclined to accumulate. The other glucosids fall in between the extremes. Hatcher found in cats that after three-quarters of a lethal dose of tincture of digitalis that it took 16 days for complete detoxication, with digitoxin 28 days, digitalin six days, and strophanthin one day.

Digitoxin accumulates rapidly and is dangerous. Digitalin is weak and is destroyed to an incalculable extent in the stomach. The same may be said of tincture of strophanthus given by mouth, while strophanthin given by intravenous administration is very effective. Thus with variation of the strength, absorbability, accumulation, etc., of various constituents and preparations, there is a very good reason for giving the leaves which represent the combined action of all glucosides. Dose, .06 gm. to 1 gm., 3 to 4 doses per day, 3 to 4 days for digitalization.

STANDARDIZATION OF STRENGTH

A colorimetric method for the chemical assay of digitalis is here described. The reaction upon which the method is based is extremely sensitive, the 0.01 mg. of digitoxin diluted to a volume of 10 cc. with alkaline picrate solution can be detected; in other words, digitoxin can be detected in

1:1,000,000 dilution. The method is simple, and, with the reagents on hand, can be performed in one hour.

It is possible by chemical means to estimate the amount of digitoxin present, but the activity of the whole drug does not correspond to the amount of digitoxin present and there is no known method of estimating the amount of other glucosides present, hence the necessity for using animals such as frogs, cats or guinea pigs.

There are at present four American methods in use for the physiological testing of the digitalis series, namely: the twelve-hour frog method, proposed by Houghton; the one-hour frog method, proposed by Reed and Vanderkleed; the guinea pig method, and the cat method, proposed by Hatcher and Brody. The cat unit of Hatcher and Brody, according to the American Journal of Pharmacy, is the weight of dry drug in mmg. which in solution is required to kill one kg. of cat, injected intravenously. The average total amount of digitalis required for oral administration to man is .15 of one cat unit per pound of body weight.

The varying rapidity with which different preparations of pure glucosides are detoxicated or absorbed by tissues makes this or any other method a little lacking in mathematical exactness. The absorption of the drug when administered by mouth is a proposition of great importance to consider in most cases. In cases with portal congestion or with stomach and intestinal irritation already existing there is deficient absorption. There is a great deal of tissue irritation in all of the digitalis group, not only in the saponins, but in the glucosides, and often create an irritation of the digestive tract varying with different preparations and the length of time remaining in the stomach before absorption takes place.

Holste and others found that the glucosides of chloroform fraction resist the gastric and intestinal juices, while the

strophanthin is easily broken up into less active and even inactive components in the stomach. Hence the administration of the latter by mouth develops a very small amount of its activity.

EFFECT UPON THE BLOOD VESSELS

It has been found by use of the plethysmograph and earlier by perfusion of different blood vessels that digitalis affects the different vessels of the body in a different manner and that the effect was due to action on the same upon some element in the vessel walls, as its effect was manifested when the spinal cord was destroyed. The plethysmograph enables us to estimate the amount of blood passing through various vascular areas.

The application of this instrument shows that vaso-constriction was chiefly in the intestinal vessels and those of the liver while those of skin and muscles and those of the kidneys were dilated.

The coronary vessels are never constricted and are dilated by small doses. These experiments may explain why arteriosclerosis involving the vessels of the heart seem to improve under influence of such doses of digitalis. This experiment has been carried out by Bradford and Phillips, Gottlieb and Magnus, F. Meyer and many others.

This dilatation of kidney vessels may also explain the apparent diuretic effect of digitalis, and while the blood pressure is increased in some parts of the body, the greatest effect is a change in the general distribution of the blood. The dilatation of the kidney vessels appear to be due to the action of digitalis upon the vessel walls as shown by the experiments of Loewi, Jönescu, Fahrenkamp and others on the denervated kidney and in the perfused organ.

According to Gottlieb and Meyer, the same concentration of digitoxin and strophanthin which, perfused through the kidneys, producing dilatation, caused constriction of the intestinal vessels, while the vessels of the skin and muscles are un-

affected and only constrict with much higher concentration. The constriction of vessels of abdomen forces the blood into the extremities, although they are not directly affected by *digitalis*.

CONCLUSION

Digitalis enables the ventricle which has been inefficient to carry out more complete contractions. It thereby removes indirectly the secondary congestion of the large vascular areas, where the diseased condition maintained. The pressure and flow become normal. The blood accumulated in the venous areas of the intestines and liver is forced out and over to the artificial side and the blood accumulated in these areas is forced out to the kidneys and into the periphery of the body.

The pathological distribution of blood becomes a normal one. In this way we can explain the removal of congestion and the improvement in distribution of blood in this case in which the insufficiency of contraction is the essential cause of the disease. This is a condition calling for large doses of *digitalis*. In the arrhythmia due to extra systole or auricular fibrillation, a disease where we have to deal with impulse production and impulse conduction, we have a condition showing the effect on the heart of central vagus stimulation and increased peripheral vagus irritation, and these are favorable conditions for small doses of *digitalis* and the heart readily slows down under influence of small doses. This response is greater in decreased than in normally rapid hearts. Just as the increased contractability in case of inefficiency is of great importance, so the vagus action is the chief factor in disturbances of rhythm.

PREPARATIONS

Besides the dried leaf, tincture of *digitalis* and the infusion of *digitalis*, we have two most important glucosides of *digitalis*, digitoxin and digitalin. We also have several proprietary remedies, the most important of which are digifolin and digitan and digitol. Digifolin is supposed to con-

tain all cardiac principles without the saponins of *digitalis*. It is in the form of tablets and ampules.

The same may be said of digitan. Digitol is a standardized tincture with the fatty matter removed, by treating with benzin. Digifolin is especially suitable for hypodermic use on account of being less irritable to subcutaneous tissues. Ouabain and strophanthin are the best forms of the drug to be used intravenously.

The physiological action of *digitalis* is conveniently considered in three stages. The first or therapeutic stage is characterized by stimulation of the vagus nerve center in the medulla, which results in slowing the heart beat. This slowing is caused by lengthening the diastolic pause. It also increases the contraction of the muscles of the ventricular wall. The net results are a greater output of blood in a given time.

The second stage is characterized by symptoms of poisoning due to excessive action on the inhibitory nerve center. The heart beat is strong, but so slow that the amount of blood sent through the heart is greatly decreased.

In the third stage the irritability of the heart muscles is so great that the ventricular beat is greatly increased, and extra systoles are apt to occur and later, fibrillation. The second and third stages are undesirable and represent the poisonous effect of the drug.

Digitalis may in large doses inhibit the auriculo-ventricular bundle, producing a ventricular beat slower than the auricular. This may go on to a coupled beat and later to a complete heart block. *Digitalis* has been used in the treatment of heart disease for nearly 150 years, but its action was poorly understood until the sphygmocardiograph and electrocardiograph by MacKenzie and Emthoven respectively in recent years.

Dr. Cary Eggleston in 1915 brought out the idea that:

(1) The amount of digitalis required in any given case might be calculated in advance.

(2) By using much larger doses than customary the desired effect could be obtained quickly by mouth administration, that whether given in small doses or large, a definite amount of digitalis was necessary to digitalize any heart. He showed that, instead of digitalizing by small doses in several days, it could be accomplished by large doses in a few hours and with safety. Eggleston's method is as follows: Practically $2\frac{1}{4}$ minims of tincture of digitalis per pound of body weight, 335 minims for 150 lbs. This is about $5\frac{1}{2}$ drams.

The method of administering digitalis when the patient had not received digitalis within the preceeding 10 days is: (a) If the case is urgent, give $\frac{1}{3}$ to $\frac{1}{2}$ of the calculated amount at the first dose, $\frac{1}{5}$ to $\frac{1}{4}$ six hours later, $\frac{1}{8}$ to $\frac{1}{6}$ after second six hours. If more is required, give $\frac{1}{10}$ of the total dose every six hours until digitalization is accomplished.

If the case is not urgent, give $\frac{1}{4}$ of the calculated total at each of the first two doses, six hours apart. Then $\frac{1}{10}$ to $\frac{1}{8}$ of the total every six hours. If the patient has been taking digitalis within the past ten days, doses must be much smaller. The reasons for giving calculated amounts in small doses: (1) A lack of uniformity of the preparation, (2) while some patients tolerate digitalis well, a few patients seem to be susceptible to digitalis poison. We are of the opinion that it is never quite safe to give these doses of digitalis unless the patient is under observation. To send the patient home for indefinite stay to dose himself would possibly be inviting trouble.

In auricular fibrillation it may be given in moderately large doses for heart failure, threatened heart failure and in acute dilatation it is best used in large doses. In

acute dilatation of pneumonia it has come into almost general use and preferably as a prophylactic measure. It is perhaps the most important drug in the treatment of pneumonia, and I am of the opinion that we should give our patients good size doses early in the disease to avoid the failure which may come later. A patient well digitalized early in the disease will remain digitalized throughout the short course of pneumonia.

Digitalis in hyperthyroidism is useful in the irregular rhythm of fibrillation but of very little use if the rhythm is not disturbed. The regular rapid heart seems to be influenced very little by digitalis.

In myocarditis and coronary sclerosis, digitalis may be given in small doses. In acute pericarditis it has little, if any, value.

WHEN TO STOP DIGITALIS

1. Nausea and vomiting when not due to other than digitalis causes.
2. A cardiac rate below 70 or a sudden slowing of the rate (which means heart block).
3. The appearance of extra systole or completed rhythm.
4. The change of a regular rhythm to an irregular rhythm or intermittent rhythm.

SUMMARY

I. It can be shown by experimentation that small doses affect the vagus center and produce slowing of the heart beat and that larger doses affect the vomiting center; that it acts upon the blood vessel walls and walls of the heart; that it unites with muscle and nerve tissues and that the heart detoxicates itself by expulsion of the drug or by katabolism; that digitalis produces a dilatation or constriction upon the blood vessels of different parts of the body.

II. The cat unit of Hatcher and Brody and the frog unit are most commonly used in standardized digitalis.

III. Best preparation for mouth administration are the tincture and dried leaf, for intravenous, strophanthin and ouabain.

IV. The method of Eggleston may be used for rapid digitalization by mouth.

V. Large doses may be used in pneumonia, in heart failure or threatened heart failure; smaller doses in fibrillation and thyroid intoxication and still smaller doses in coronary sclerosis and myocarditis.

VI. *Digitalis* probably has very little effect in surgical conditions or other conditions with rapid heart where the heart is not affected.

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DISCUSSION.

Dr. Chaille Jamison (New Orleans): The question of digitalis is a delicate one, because every doctor has his own opinion as to how it is to be used, and it is always a subject that I approach with considerable diffidence. However, Dr. Williams has discussed the pharmacology so beautifully that I would not attempt to say anything about the pharmacology of the drug, but would like to confine my remarks to its clinical use.

My own ideas have crystallized in the last two years, after a considerable number of years of observation. First of all, the outstanding value of digitalis, certainly where its most brilliant results are obtained is the myocardial lesion, particularly with congested heart failure, that is the outstanding place in which we see the most beautiful and brilliant results.

Secondly, I think we can fairly safely state that in congestive heart failure which results from rheumatic diseases, it is always fraught with good results, one can expect good results with confidence in congestive heart failure due to any of the rheumatic lesions.

It has always struck me that in hypertensive heart disease with congestive failure that the results are nearly as good as in rheumatic heart disease, and one must be careful of that pitfall in the use of digitalis of increasing blood pressure, give the digitalis whether the blood pressure is high or not. The blood pressure rises more freely after congestive heart failure than it falls, and it is not an index for the use of digitalis. Every physician has seen the pressure fall under such dosage as recommended by Dr. Eggleston.

Now, I am coming to a point of my discussion which I want you to understand is a personal view, I am not in a position at the present time, thought I hope to be in the next few years, to prove my point, it is more an impression at the present time than it is capable of proof, and that is of the effect of digitalis on syphilitic heart disease. The older cliniticians have taught us, and I think they were correct, that digitalis was often, at least if not actually harmful, useless in regurgitation.

I believe it has no value, I believe in the other forms of syphilitic heart diseases that its value is practically nil, so much so that in my service at the hospital where we see a great preponderance of those cases, we no longer use it. We use it in rheumatic diseases with congestive heart failure, and in hyper-tension diseases with congestive heart failure, not otherwise. The subject is too big to even begin to discuss in a few minutes and I am going to close with those remarks.

Dr. Kerlin (Shreveport): I was glad to hear Dr. Jamison, particularly, stress the use of digitalis in the fibrillators. I would like to mention, particularly, its use in the chronic fibrillators. I have had occasion in the past five or six years to observe three cases in which prior to their coming under my observation they had been given digitalis during the acute attack, and upon improving they would cease taking it, and they would usually have a recurrence. I insisted that instead of ceasing the administration of digitalis, that they continue it, and along the lines that Eggleston has suggested. I have had them take twenty-five minimums daily over a period of three to five years. In other words, they are never without their daily dose of digitalis, at least once or twice a day; it makes no difference how they take it, whether it is one dose or two doses; and, to my surprise, these cases have never had a return of the fibrillation except in a minor degree. I have kept in contact with them and have questioned them closely regarding a recurrence. Do not misunderstand me to say that I believe it would do that in all chronic fibrillators. It may be a coincidence, but that has been my observation in a few cases.

Dr. A. G. Herold (Shreveport): *Digitalis* is one of our most valuable drugs, if properly used; at the same time it is one of our most abused drugs. I am sorry we cannot hear all of Dr. William's paper, because there are some points on the therapeutics that I wanted to get. I thoroughly agree with everything Dr. Jamison has said, but I was a little disappointed when he said there was one point he did not want to be very dogmatic on, I wanted him to express an opinion.

I was in hopes he was going to give his views on the use of *digitalis* in pneumonia. That is a hobby of mine. I have written two papers, one on pneumonia, one on the use of *digitalis* in pneumonia, and there have been a number of controversies on the subject. I am still of the opinion that in pneumonia it is a proper drug, and should be used before the heart begins to dilate. I have seen the dilated heart where the patients go out by cardiac failure, and I believe if you slow that heart, give that heart muscle a chance to properly nourish through prolonged diastole, at the beginning, we could save many deaths by heart route at least.

I recall a controversy I had at one of the New Orleans meetings of this society on that very subject. It is not an infallible rule, but the rule that I try to go by is that, if the pulse rate gets higher than the systolic blood pressure, I begin my *digitalis* immediately and give it in sufficient dosage to slow the heart down. I thank you.

Dr. J. A. Danna (New Orleans): If there is any condition in which a drug that both strengthens and slows the heart ought to do good, then the acute thyroid toxicosis, or an acute thyroid flare-up is the ideal thing for the average, that is, it seems so to me. For a long time I used *digitalis* in these cases, but never seemed to get any more result from it than from any of the other medications.

For several years, at least three years, Plummer, of the Mayo Clinic, preached that *digitalis* is a harmful drug in that type of case, and he says that cases in which they used *digitalis* are the ones which die. I would like to have Dr. Williams, if possible, express his opinion on the subject, and enlighten us a little bit.

Of course, this statement of Plummer, and this conclusion which Plummer has come to, has been coincident with the use of iodine in the treatment of these cases, both prophylactic, and after they flare up, so that there may be a question as to whether Plummer is right or not. I believe Plummer is the only one who feels that way. In the other big clinics they are still using *digitalis*.

Dr. Oscar Bethea (New Orleans): Allow me to say, in the first place, that I believe that it would be an excellent idea if we had at least one paper on some important drug at each of our meetings.

Dr. Williams has met this requirement exceedingly well by his excellent presentation on the subject to *digitalis*.

This is such an important drug and is so extensively employed that we naturally find a divergence of opinion among members of the medical profession. Almost any reasonable remark would be safe in a small crowd such as we have in this session today, but in a large group, *digitalis* is an excellent subject with which to start a fight. It has at times reminded me of the old story of Saul of Tarsus when brought before the Sanhedrin. Wishing to divert attention from himself, he brought up the question of the Resurrection of the dead and a Roman legion had to be called out to quell the riot.

This lack of uniformity of opinion with regard to *digitalis* obtains particularly with regard to goiter, the condition that has just been mentioned, where we find men like Plummer and Sajous on exactly opposite sides.

Also with regard to its use in pneumonia, as suggested by Dr. Herold. There are many great writers who agree with Dr. Herold and his contention, and a host of others are emphatically opposed to such employment of the drug.

I do not feel that I can add anything worth while to the excellent presentation of Dr. Williams.

Dr. J. George Dempsey (New Orleans): *Digitalis*, its use, properties, indications, etc., would require many volumes for complete consideration. I wish merely to encourage its use in different forms and to add a word of caution lest too much dependence be placed in the many synthetic preparations on the market at the present time.

In instances when the modern treatment has been found to be of no benefit, it is well to bear in mind the old reliable decoctions, extracts and infusions. In my own experience the last named has been effective frequently, when the others have failed.

Dr. J. E. Williams (closing): In reference to the effect on the heart in thyroid intoxication, I am of the opinion that as long as the thyroid intoxication has not affected the musculature of the heart, that it probably does no good, but when the heart muscle begins to fail, I believe *digitalis* is a valuable drug even in thyroid intoxication.

In reference to *digitalis* in the treatment of pneumonia, I believe the proper use consists in the early administration in material doses. *Digitalis* given our patients early in the disease will carry them through the crisis when the heart needs the support. The effects of *digitalis* will last several days and will carry them through the short period of the pneumonia. I certainly appreciate the percentage of the crowd commenting on our paper.

**OBSCURE SYMPTOMS PRESENTED
BY ANOMALOUS KIDNEYS.*****REPORT OF THREE CASES****BARRON JOHNS, M. D.,****SHREVEPORT, LA.**

With the advent of modern methods of urological diagnosis, the anomalous kidney has become almost a matter of everyday occurrence, at least in the clinics where a large number of cases are seen for routine diagnostic procedure and where the uretero-pyelogram is employed frequently as a part of the investigation of urinary organs. In the study of malformed kidneys there is still quite a deal of discussion as to the line separating the normal from the abnormal. Ureteral duplication with double pelvis and kidney is by far the most common of renal anomalies, in fact it occurs more than all the other forms of anomalous kidneys combined. About 3 per cent of all individuals have a double or bifid ureter. Autopsy findings of some investigators indicate 4 and 5 per cent of duplicate ureters and pelves. A review of the literature brings out several interesting facts characteristic of double kidneys and ureters. The anomaly is most common in females in the proportion of two to one. It occurs unilateral in 85 per cent of cases and bilateral in 15 per cent. When the anomaly is unilateral it occurs with about equal frequency on the right and left sides. Anomalous kidneys are more susceptible to infection and other pathologic change than normal kidneys, although the majority of double kidneys we find in the course of routine cystoscopic examination or at autopsy do not give rise to symptoms. The phenol-sulphon-phthalein functional test of the two parts of the double kidney usually equals that of one normal kidney. Another interesting fact is that bifid or double ureters are never seen with a single renal pelvis, a division of the ureter or duplication of the ureter without exception means a

double pelvis. If there is complete doubling of the ureter, the one draining the superior pelvis empties at a lower point in the bladder than the ureter draining the lower pelvis.

The embryology of double kidneys and ureters is still a subject calling for much discussion and theory. The normal ureter and renal pelvis with calyces and collecting tubules develop from the ureteral bud, an outgrowth from the dorsal surface of the Wolffian duct. Premature division of the ureteral bud would evidently give origin to the bifid or branched ureter. There is a difference of opinion as to the origin of complete doubling of the ureter, that is, whether such ureters arise from separate outbuddings from the Wolffian duct, or whether they arise as sprouts from a single parent bud.

A second group of anomalous kidneys not so frequently met with as the malformed kidney, is the type classed as abnormal because of its position. These ectopic or commonly spoken of as pelvic kidneys, were considered rare and patients possessing them were looked upon more or less as freaks until modern urological diagnostic technique demonstrated that a comparatively large number of individuals had congenital malposition of kidneys, that were perfectly normal in function. The frequency of ectopic kidneys as shown by statistics is about one in five hundred. Naumann in 10,177 autopsies found twenty cases of congenital misplacement of the kidney in the true pelvis, three of these cases being bilateral. It must be remembered that renal dystopia or the ectopic group of kidneys is a congenital condition and does not include the so-called floating type or those displacements arising as a part of a general visceroptosis, from tumor, hydronephrosis or faulty attachment. This acquired displaced kidneys is characterized by a tortuous elongated ureter giving evidence of extrinsic causes of displacement.

The congenital misplaced or ectopic kidney has definite characteristics, they are

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commonly found in the true pelvis, the ureters are short but enter the bladder normally. The peri-renal fat and renal fascia are absent and the kidney is firmly fixed to surrounding structures. As a rule the lower the kidney the more firmly it is fixed. It is almost always smaller than normal, and the renal pelvis is directed anteriorly as in the embryonic condition before rotation occurs. The blood supply is always abnormal, the blood vessels being multiple arising from the aorta or common iliacs. In a large number of cases there are associated anomalies of other organs, particularly so the genitals. In males there may be absence of ejaculatory ducts, seminal vesicles or vas deferens, and testicles may be atrophic or undescended. In the females the uterus and vagina may be absent or undeveloped. Similar to double kidneys, the ectopic kidney seems to be more common in females, and more susceptible to disease than those in normal position. Tuberculosis, stones and hydronephrosis are the most frequent types of pathology seen.

Embryologically, the cause of ectopic kidneys is not definitely understood. We know that the ureteral bud springs from the posterior surface of the Wolffian duct, grows dorsally and upward to meet a cap of mesoblastic tissue to form the kidney, the subsequent development, rotation and ascent to its normal position in the lumbar region being completed about the end of the second month. Supposedly, any factor serving to retard or deflect the ureteral bud is a cause of congenital misplaced kidneys.

Clinically, the malformed and malposed kidneys have come to occupy a definite place in urological diagnosis. The larger percentage of these renal anomalies produce no symptoms, although we know they are predisposed to pathology. As a rule, disease of these anomalous kidneys is manifested by the usual signs and symptoms characteristic of renal disease. I wish to present a brief review of three cases of diseased anomalous kidneys in which the symptoms and physical signs were obscure as well as misleading.

Case No. S12930. A white woman of thirty-five years, weight 190 pounds, was admitted to the clinic May 1, 1926. She complained of periodic attacks of nausea, indigestion, pain in upper right abdomen and back, fleeting pains in right side of neck and occasional attacks of frequent painful urination. The family history indicated nothing of importance, and the past history was of no particular interest except for the usual childhood diseases. She had had three normal pregnancies and one miscarriage at the third month. Her present condition began three years previous with indigestion characterized by nausea and fullness in the upper abdomen, which was relieved by belching. She also had occasional colicky pains in the right lumbar region extending upward toward her shoulder. These symptoms became more severe, especially the nausea. She would frequently be awakened at night by a feeling of pressure in her stomach, would vomit and go back to sleep. For the past year before admission, the nausea had been constant irrespective of meals. The pain in the upper right abdomen began six or eight months before admission, was of a dull aching type, but only on two occasions was it necessary to take something for relief. For several months she had a feeling of soreness in the right side of her neck with frequent fleeting pains. This soreness would be exaggerated by beads, furs or any article of clothing causing pressure. The only symptoms referable to the urinary tract were occasional attacks of frequent painful urination lasting a few hours.

On physical examination the positive findings were: moderate tenderness and muscle rigidity in the upper abdomen, an umbilical hernia, the fascial ring of which admitted three fingers, reduced itself with patient in prone position and filled to about the size of an orange when sitting or standing (this hernia dated back to her first pregnancy 14 years previous); a second degree perineal laceration with well developed rectocele and cystocele. The catheterized specimen of urine was negative. A routine blood examination indicated nothing of interest. Roentgenograms of the gastro-intestinal tract gave nothing of importance. A Graham-Cole study of the gall-bladder showed a chronic cholecystitis with probable stones.

Operation May 14. A thickened adherent gall-bladder containing thirty-six small, soft stones were removed together with a freely movable appendix filled with fecal concretions. The hernia was repaired with the closure. The post-operative convalescence was without incident.

In February, 1927, this patient was again admitted to the clinic. She stated that the only benefit obtained from her operation was partial relief of indigestion. Nausea was constant and

vomiting more frequent. Pain was still present around the right costal margin and the pain in the right side of neck was worse. She still complained of occasional attacks of frequent urination. Catheterized specimen at this time showed three pus cells with a large number of bacilli coli. Cystoscopic examination: Bladder negative, other than a well developed bas-fond. The left ureter admitted a No. 5 catheter with ease. The right ureteral opening was constricted and retracted. A No. 5 catheter was passed only after the orifice had been dilated with a bougie. An intermittent flow of clear urine was obtained from both kidneys. The catheter was then withdrawn from the left ureter and inserted alongside the right to further dilate the orifice. It was noticed there was an immediate rapid flow of dark, cloudy urine through this catheter. Pyelogram showed a double kidney on the right, with two ureters emptying into the bladder through a common orifice. Urine from the upper pelvis was loaded with pus cells and bacilli coli. From the lower pelvis was negative. It was interesting to note, every symptom of the patient disappeared after the second renal lavage.

Second case, No. S16919. In this patient the anomalous kidney findings were almost exactly the same as the case just described and will be outlined very briefly.

A young married woman twenty-five years of age, was admitted to the clinic November 23, 1926, complaining of indefinite pains in the arms, shoulders and upper part of the back, daily headaches, and fever varying from 99.5 to 100 every day for several months. The onset of her symptoms began five years previous, following a six weeks illness, diagnosed typhoid. Two years later her pains were thought to be focal in origin; tonsils and five teeth removed. She was placed on a non-toxic diet and given the rest cure for three months. There was no relief from any of her symptoms, although she gained twelve pounds in weight. A year later she had a miscarriage at the third month. Within a short time she became pregnant again and had a premature labor at the seventh month. At no time during the period of five years was there any urinary symptoms, although she stated that pus had been found in her urine on one occasion.

Physical examination of this patient was practically negative including roentgen-ray study of the chest and gastro-intestinal tract. Blood examination gave nothing of interest. Examination of catheterized urine showed an average of four pus and two red blood cells per high power field.

Cystoscopic examination November 28 showed the bladder negative other than a marked prominence of the inter-ureteric ridge. While passing a catheter into the right ureter, the ridge pulled

over disclosing a second orifice on the right side about 1 cm. below the first, which also admitted a catheter without obstruction. On the left side there was a normal orifice and a dimpling behind the ureteric ridge corresponding to the anomalous opening on the right. Pyelogram showed a double kidney on the right side and analysis of the specimens indicated a bacilli coli pyelitis of the superior pelvis. All of the patient's symptoms cleared up after treatment of this condition.

The third case was one of congenitally misplaced or ectopic kidney.

No. S16295. A married woman thirty-eight years of age, weight 160 pounds, entered the clinic September 6, 1926. The principal complaint was painful defecation. The desire for bowel movement was always preceded by cramping pains in the lower abdomen and back, in the region of sacrum and coccyx, the pains would rapidly become more severe reaching their climax with evacuation, followed by complete relief. Additional complaints were dysmenorrhea, menorrhagia and painful coitus.

The family history was of no interest. The past history and the history of the present condition were the same since the present complaints began when she was 13 years of age with the advent of the menstrual function. She had had seven miscarriages, all between the second and sixth month. None of her pregnancies went beyond the sixth month. Menstruation had always been painful and profuse. During the past ten years the duration has gradually increased until at the present time she is free from menstrual flow about eight days in each month. The patient states she can't remember ever having a bowel movement not preceded and accompanied by pain. She has learned the disastrous results of constipation, since such a condition for her means hypodermics of morphine and enemas. Consequently she has fallen into the habit of taking large quantities of mineral oil and laxatives so as to have two or three soft stools each day. intercourse has always been painful, producing something like the same type of pain as that accompanying defecation. There is no history of any urinary disturbance.

The positive findings on physical examination were briefly as follows: A hard, rounded, uniform tumor apparently blending with the post surface of the uterus, filling the cul de sac, the mass is fixed and about the size of a three months pregnancy. Vaginal examination produces the same type of pain as that accompanying defecation. Rectal examination further determines the pelvic tumor, otherwise negative.

Laboratory findings on blood and catheterized urine negative. Admitted for operation September

ber 9 (Sub-total hysterectomy). The rather firmly fixed retro-peritoneal sub serous fibroid made the operative procedure somewhat tedious. With reflection of the peritoneum and removal of the tumor, an ectopic kidney was exposed lying in the left side of the sacral hollow at the level of the second sacral segment, firmly fixed to the rectum and surrounding structures; its ureter short and tortuous and deriving its blood supply by three branches from the common iliac artery. Due to the unknown function of the opposite kidney and the procedure to which the patient had already been subjected, the misplaced organ was not removed.

The interesting feature of this case is the follow-up record: Six months after the operation defecation was still preceded and accompanied by pain, and coitus was still painful. A year later her condition was unchanged.

In October, 1927, the ectopic kidney was removed, there has been complete relief of all her symptoms.

In conclusion, the brief review of these cases is presented for the purpose of calling your attention to the fact that anomalous kidneys when diseased are prone to manifest their presence by symptoms and signs not referable to the urinary tract. It is only by better co-operation between internist, urologist and general practitioner, with more general recourse to complete urological examination in obscure cases, that these patients can be prevented from being subjected to comparatively useless medical and surgical procedures.

TULARAEMIA IN SHEEP IN NATURE.—A report recently made public by the United States Public Health Service points out the proved occurrence of tularemia in sheep in nature. This opens the question of the possibility of human infection from the handling of infected carcasses. Infection is known to be definitely possible through the primary contamination of the hands with the tissue of crushed infected ticks held in the wool or with tick excrement which is commonly present in large masses. The fingers might also become contaminated by contract with the decayed tissue which sometimes develops at the points where infected ticks have been attached. The chance that infected meat might reach the market and be a source of danger to persons in slaughter-houses and packing houses and to the consuming public seems less likely, but can not be altogether dismissed, especially if animals are slaughtered for immediate local consumption.

TUBERCULOSIS.*

T. D. BORDEAUX, M. D.,

MERIDIAN, MISS.

Tuberculosis, especially pulmonary tuberculosis, remains one of the commoner diseases with which we have to contend. It can and does attack practically all organs of the body. From a pathological standpoint it is one of the most interesting diseases; from a public health standpoint it is one of the most important diseases. The responsibility of its control rests largely on the medical profession, especially the general practitioner.

The average doctor seems but casually interested in tuberculosis, and for some reason is reluctant to make a diagnosis of tuberculosis until the disease has made such progress that the patient's neighbors have already suspected or actually arrived at a diagnosis. And when the diagnosis is made many doctors are ready to throw up their hands in despair, and say to the family, "See if you can get him in at Magee," or, if particularly well off, "Send him out West."

Tuberculosis is curable in most forms in the early stages. It is the duty of the general practitioner to be able to recognize, or at least suspect clinical tuberculosis from the signs and symptoms, without the aid of laboratory or roentgen-ray, however useful they maybe in confirming or disproving a suspected case.

To recognize tuberculosis in its early stages, it is necessary to keep tuberculosis in mind, and to look for it; and to aid in the diagnosis of pulmonary tuberculosis there are certain signs and symptoms that point almost unmistakably to this disease. To begin with, any trouble found at the apices of the lungs is to be considered tuberculosis until proved otherwise. Expectoration of blood, as much as a teaspoonful repeatedly, almost surely means tuber-

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

culosis; persistent subcrepitant rales in the apices after exhalation and cough usually means tuberculosis. Chronic pleurisy with effusion is almost always tuberculous. An unexplained loss of weight, accompanied or not by an afternoon rise of temperature, chronic indigestion, neurasthenia, all should suggest tuberculosis, and there are many other suggestive symptoms if one will keep tuberculosis in mind, and be on the lookout for it at all times.

DISCUSSION.

Dr. W. H. Anderson (Booneville): The subject of tuberculosis has been so thoroughly covered today by Dr. Boswell before noon, and Dr. Bordeaux just now that there is not anything to add except to emphasize the points that they have brought out. I think the most important thing brought out by this is the fact that a responsible does rest upon the general practitioner just as it rests on the general practitioner to solve all of the real problems we have. And if we keep it in mind always that we have to consider tuberculosis, then we will go far towards solving the problem. After all tuberculosis is largely a problem in economics as I see it or at least that enters into it. As far as I can find after some little investigation—it might not be true, but as far as I can find from inquiring locally of people in the negro race, tuberculosis was hardly known before the Civil War. When the negro was well fed and well housed and put to bed on time he did not have tuberculosis. This morning Dr. Boswell told us that 1450 of the 1800 deaths in Mississippi last year were among the colored race, and that gives us something to think about there. We won't go very far along with the problem when we send one person to the sanatorium and we have a colored woman in the back yard—a cook—that gives it to three other persons while this man is at the sanatorium, and the record will show that each person gives it to three other people on an average.

Then another thing that will give us a little lead to keep our minds upon, is a book recently written by Draper, I think it is of New York, going back and making a physical study of the human organism, a study which was started 150 or 200 years ago, and then when we began to get a little further along when the germ theory got in the air, before we knew much about it especially after we began to look at the micro-organisms, we forgot all about the human organism, and we have been chasing these germs for 100 years and have forgotten the human organism. He has divided the human body into four panels, I believe he calls them, the anatomical, the physiological,

the pathological and psychological, and he says when he makes this analysis he can tell mighty well what a man is going to die with. I believe it is overdrawn, but there is a lot in it, and if you will get in your mind a picture of the person who is susceptible to tuberculosis and examine for tuberculosis all of them, it will be best.

There is one other point I have in mind—a little experience I had that I don't think was so good, and I just want to give a little warning about examining the chest before you operate especially for the removal of tonsils. I had two patients that I felt should be operated on; they kept having sore throat, tonsilitis and finally I operated. I didn't think one of them did so well after the operation, not immediately afterwards but several months later. I thought the patient went down faster than he should. The other case had a goiter and she had tonsillitis almost continuously, and I finally decided to remove her tonsils and the goiter disappeared, but this case didn't do so well either, and in my opinion you should be very careful in that type of case and go over the lungs before you do, or recommend an operation for the removal of the tonsils. I certainly enjoyed this paper.

Dr. Love: We have with us Dr. Wyman of Alabama, a member of the State Board of Health, who has been interested in tuberculosis for several years. We would like to hear from him.

Dr. Wyman (Alabama): I am very glad indeed to meet with the Doctors of Mississippi. This happens to be my first visit to your excellent association. I have a very warm spot in my heart for Mississippi. You are our close associates, you are our neighbors, and I feel very kindly to the Mississippi people because my mother was born in Lowndes County, Miss. I have often wished to attend your meetings. I note that you are doing wonderfully progressive work in public health in Mississippi. I heard the discussion this morning. Your work will almost equal that of Alabama. Now, gentlemen, you know Alabama is in the lead in public health work. You will excuse me for saying that, but I presume you all know it. I heard our health officer say not long ago that in two years we would have an all-the-time health officer in every county in Alabama. I said, "we knew you were a great health officer, we know you are a great executive, but I am satisfied now you are a good politician." He got the money, and we are going to have an all-the-time health officer in every county in the state. Gentlemen, this is an achievement of which we are very proud. We already have 60 per cent of the people of Alabama under public health service.

I did not get up here, however, to laud Alabama, but just to say a word with reference to tuberculosis. Dr. Bordeaux has given you all the essential points in an early diagnosis of tuberculosis. I have for many years been interested in this subject, and I find that the great trouble is that the average practitioner does not make an early diagnosis. They are afraid to tell the people they have tuberculosis. Now we don't hesitate to tell them so the disease can be resisted. There are one or two points in a differential diagnosis that I would like to mention. There are many people who consult a doctor with the idea that they have some chronic disease, many of them imagine that they have tuberculosis. Now, in my work I find a lot of them come labelled with neurosis; that doesn't mean much. I remember when I was in New York attending a clinic the doctor in charge would bring the students around, after giving them the history of the cases, and ask them what their diagnosis was. One of the fellows would say neurasthenia. This doctor said, "that is no diagnosis—that doesn't mean anything." Now as a matter of fact there are many cases diagnosed as neurasthenia, who really have tuberculosis. We find that as Dr. Boswell said, the early signs are very important. One thing I want to call your attention to is a rapid pulse. You get a rapid pulse in other diseases besides tuberculosis. You have to differentiate in the absence of physical signs between a hyper-thyroid. You also have to differentiate from diseases of

the circulatory system, which they call in' the army neuro-circulatory-asthenia. That diagnosis was made often in the army, and if you look in the Veteran's Bureau you will find many cases diagnosed thus, which means a neurotic condition, weakness of the heart muscles with a rapid pulse. I heard Dr. Minor say he had a number of cases who had been sent to Asheville in which the diagnosis of tuberculosis was made when he found that they were psycho-neurotics, so it is important to eliminate that.

I think that if we would be very careful in our examination of our patients, go over the lungs very thoroughly as Dr. Bordeaux has pointed out, and find the physical signs which he has mentioned—there may not be any dullness or percussion, you can except the usual rules—you can arrive at a very definite diagnosis.

Now, just a word in reference to the roentgen-ray and to the sputum. Of course you all know that in early tuberculosis you get no bacilli in the sputum, so absence of bacilli is not evidence that the patient has not tuberculosis. The roentgen-ray findings, as we all know, are very uncertain; there are many lungs that have spots in them. I never make a diagnosis unless there is some little temperature and the clinical signs are evident.

Dr. T. D. Bordeaux (closing): I have nothing further to say. I wish to thank you gentlemen.

REVIEWS

WOUNDS.*

(Part II)

ALTON OCHSNER, M. D.†

NEW ORLEANS.

INFECTED WOUNDS

The processes occurring in infected wounds are practically the same as those which occur in the sterile, non-infected wound, the difference being largely that of degree. In order to better understand the biologic processes occurring in such wounds, these points might be recapitulated. Sir Almroth Wright⁵² divides the organisms which are found in infected wounds into two types, the so-called sero-

phytes and the sero-saprophytes. He believes that the serophytes can grow and multiply in unaltered blood fluid, whereas the sero-saprophytes can exist and multiply only in altered blood fluid, which he terms corrupted body fluid. The serophytes are those organisms which are found in relatively clean and open wounds. Of all the organisms found in all types of wounds, only the serophytic organisms, especially those of the streptococcic group, are capable of invading the normal blood stream. Only when the blood stream itself becomes altered or corrupted can the sero-saprophytic organisms gain entrance to it. Only serophytes can grow in the comparatively clean wound because of the anti-tryptic power of the blood. It is known that the leukocytes, when destroyed, furnish a tryptic ferment. This tryptic ferment is neu-

*Presented before the Surgical Faculty, Tulane University, April 24, 1928.

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tralized by the anti-tryptic ferments of the blood. When, however, more tryptic ferment is formed, by the destruction of a large number of leukocytes, and not enough anti-tryptic enzyme is present to neutralize the ferment, saprophytes may grow luxuriantly. The tryptic ferment which is produced by the destruction of the leukocytes is a desirable factor when sloughs and necrotic material are present, as this tryptic ferment serves to digest the necrotic material. According to Wright⁵² the physiological properties of the leukocytes are: (1) a very active spontaneous motility; (2) power to immigrate from the capillaries; (3) stereotropism; (4) chemotactic attraction and repulsion; (5) power to ingest and destroy, by intracellular digestion, microbes that have been prepared for phagocytosis and digestion by the tryptic action of the cell; (6) power to excrete, under appropriate stimuli, bactericidal substances which kill microbes of various kinds exposed to their chemical influence; and (7) the liberation of trypsin.

Within an hour after the beginning of a wound infection capillaries become dilated.^{53, 54} The rate of the flow of blood increases. The corpuscles occupy the axis of the vessel, whereas the peripheral portion is occupied by plasma. Shortly after this acceleration in the blood flow there occurs a slowing of the blood stream, and at the same time the leukocytes of the blood become adherent to the capillary wall. The differentiation between the axial and the peripheral streams cannot be made out. The leukocytes become firmly attached to the lining of the vessel, following which an emigration of the leukocytes through the vessel wall occurs. The leukocytes gain entrance to the lymph spaces outside the capillaries, and within the course of 5 or 6 hours all the capillaries and small veins in the neighborhood of the injury show a collection of leukocytes along their outer surfaces. The organisms are actually ingested by the leukocytes. In about 24 hours' time the connective tissue fibrils are widely separated by the aggregation of the leuko-

cytes. Within 48 hours the inflammatory process begins to become walled off. There is destruction of the living cells in the region of the greatest infection. Surrounding this a wall of leukocytes separates the infected area from the rest of the uninvolved tissue. Wright⁵² believes that the polymorphonuclear leukocyte differs from the mononuclear leukocyte in the following manner: Due to the division of the nuclei of the polymorphonuclear leukocyte, these cells make their way through the capillary wall more readily, and they can move faster than the mononuclear cells. In fluid the polymorphonuclear cells have no fixed point of attachment and are unable to attack organisms. If, however, the wound is free from fluid, the leukocytes, by their active and amoeboid movement, are able to directly attack and destroy organisms.

In granulating wounds leukocytes and serum are found on the surface of the wound. Flemming⁵⁵ has shown that flushing a granulating wound with physiological salt solution removes all the leukocytes and thereby removes the protective factor. After a period of time, however, fresh leukocytes appear again which have a bactericidal effect. If pus is allowed to collect in the wound the bactericidal power properties again become diminished.

THE BACTERIOLOGY OF GRANULATING WOUNDS

Considerable work has been done, especially among the Continental surgeons, on the bacteriology of granulating wounds. Melchoir and Lubinski⁵⁶ examined a series of 69 wounds, all of which were of the clean, granulating type. Organisms were found in only 59 cases, whereas in 10 wounds there was no evidence of any organisms obtained bacteriologically. In only five instances were a large number of organisms found, whereas in 16 instances there were only a few or an occasional organism. The diphtheria bacilli were present in 6 per cent of the cases. In 25 cases there was a mixed infection, and 34 times the organism was found in pure culture. The staphylococcus aureus hemoly-

ticus and staphylococcus albus non-hemolyticus were by far the most frequent offenders. Streptococci alone were found only one time and only 9 times together with other organisms. Grossman⁵⁷ examined 400 wounds bacteriologically. A large number of wounds were examined repeatedly, often as many as six or eight times. Of this number 200 were "clean wounds" and showed healthy granulations. Grossman believes that the finding of no organisms in ten out of 69 wounds by Melchoir and Lubinski, is of little significance, because one is apt to fail to find organisms if repeated examination or smears from different parts of the same wound are not made. The staphylococcus aureus was found shortly before healing in every wound, and was frequently found in fresh scars by Grossman. In 115 cases the staphylococcus aureus was found in pure culture. Organisms of the diphtheria group were present in 65 instances. Streptococci were seldom found, and in only two cases were they found in pure culture.

Blumenthal⁵⁸ examined 50 cases of wounds, most of which resulted from the drainage of infected processes. These cases could be divided into three groups, 23 of which were in the first group. These are wounds which, very shortly before healing, became sterile. The number of organisms, which were relatively few from the beginning, rapidly decreased in number. Secretion, which at first was seropurulent became serous before healing occurred. Of these cases there were 16 cases infected with the staphylococcus albus, 5 cases with the staphylococcus aureus, and two with the staphylococcus aureus and streptococcus. The streptococci usually disappeared from the wound within two to three days. The average duration of healing in this group was from 10 to 11 days. In the second group there were 20 cases, the wound at no time becoming sterile before healing. The staphylococcus albus occurred in 8 cases, the staphylococcus aureus

in 5 cases, and a staphylococcus albus and streptococcus in 7 cases. The average duration of healing was 13 days. Streptococci disappeared from the wound in from 5 to 7 days. In the third group there were seven cases, and these were those in which the healing time was markedly prolonged. In this group there were two cases infected with staphylococcus albus and streptococcus together, two cases with staphylococcus aureus and streptococcus together. In this group the number of organisms originally found was much greater than in the other two groups. In contradistinction to the above authors Flemming⁵⁵ states that the organism which was responsible for most of the serious infections in man is the streptococcus.

The possibility of anaerobic organisms infecting wounds must be especially considered in the lacerated and contused wounds. Even though many more such infections were seen during the World War, enough occur in this age of the automobile that it behooves every physician to consider an anaerobic infection in all contused wounds. The two most frequent offenders are the tetanus bacillus and the Welch bacillus. Recently Zeissler and Neller⁵⁹ reported 21 cases of gas gangrene which occurred in a relatively small number of traffic injuries. Seventeen of these were complicated by compound fractures and of these 7 were fatal. As these organisms are anaerobic and can probably only grow either in devitalized muscle (its growth being dependent upon muscle glycogen) or in symbiosis, *i. e.*, pyogenic organisms, the imperativeness of a thorough debridement in all extensive injuries, especially those involving muscles, is evident.

In all penetrating and contused wounds the prophylactic administration of tetanus antitoxin is imperative. Ashhoff and Robinson⁶⁰ (Meyer) have produced strong experimental evidence that the immunization resulting from the injection of anti-tetanic serum becomes ineffective in about ten days, and they advocate the second administra-

tion of antitoxin on the eighth day in all suspected cases. Meyer³ also advocates this procedure.

TREATMENT OF INFECTED WOUNDS

Any wound seen 12 hours after its production should be considered infected, and should be treated as such. In badly traumatized wounds in which there is considerable devitalization of tissues it is often desirable and even imperative to remove the devitalized structures which especially favor the development of an infection. Such a wound should not be closed primarily but is best left open.

Since the introduction of antiseptic surgery by Lister, there has been a continuous attempt on the part of surgeons to sterilize wounds by means of antiseptics. At the present time there are two large schools, one which teaches that sterilization of wounds by antiseptics is the most important part of the treatment of such wounds, and the other which teaches that the increase in the resistance of the part, together with mechanical sterilization, is more physiological and a better procedure. Concerning the use of antiseptics Flemming⁵⁵ states, "I can remember in the days when I was first admitted to the surgical wards as a dresser, there were always a certain number of septic wounds which we were instructed to dress with this or that antiseptic, which stood in jars around the fire, and which we were told possessed great virtues as destroyers of microbes in the wounds. These antiseptics were chiefly carbolic acid, mercury salts, and boric acid. The wounds were religiously dressed twice a day with these lotions, and although it was obvious that the antiseptic did not kill the microbes in the wound, we were always told that it would kill many of them and so the condition would be better than if no antiseptic were used. We were not then in a position to criticize this view."

Before considering the chemical antiseptics of wounds, let us review the normal bacteriacidal properties of a wound. As has been stated previously, the antitryptic

power of blood and wound serum inhibits the growth of certain organisms, especially the serosaprophytes. Wright⁵² has shown that the streptococci are the only organisms which can grow, to any extent, in normal wound fluids. The leukocytes in a wound have, in addition to the power of phagocytosis, a direct bactericidal effect, as has been definitely shown by Flemming⁵⁵ and Wright.⁵² Leukocytes can exert their greatest bactericidal effect when they are not suspended in fluid. The value of absorbent dressings on wounds is evident. That many antiseptics exert an inhibitory and lethal effect on organisms *in vitro* cannot be denied. "Speaking generally, it has been shown that antiseptic solutions showed a maximum bactericidal action when they are allowed to act on the microbes in a watery medium; their action is more feeble when the medium is of a serous character; it is still less in blood; it is further reduced when the medium is of a purulent character, while least of all will an antiseptic act on bacteria embedded in a piece of tissue." (Flemming⁵⁵.)

When one considers the effect which an antiseptic exerts upon wound bacteria, several factors must be taken into account. One of the most important of these factors is the rate at which the antiseptic acts both upon the bacteria and the leukocytes in the wound. Generally speaking, it might be said that any antiseptic having a detrimental effect on a micro-organism exerts the same detrimental effect, to a more or less degree, on the living cell of the part. The use of phenol, and its derivatives, as an antiseptic agent in the treatment of wounds is mentioned only to be condemned. Levai,⁶¹ in 1897, observed carbolic gangrene in 26 cases in which wounds had been treated with phenol. In 12 cases the phenol had been used in weak solutions, and in 14 it had been used in concentrated solution. Levai performed a large number of experiments in animals, employing not only phenol but also weak solutions of other chemicals, such as lysol, mineral acids, acetic acid, potassium and sodium hydrate. These

experiments showed that very weak solutions produced an edema and hyperemia of the part, which led to mummification as the result of necrosis of the cells so treated. The necrosis, Levai concluded, was due to the cell's being attacked by chemicals. Harrington,⁶² in 1900, described 18 cases of phenol gangrene which he had observed. He was able to select from the literature 132 cases of carbolic gangrene. In all cases the gangrene was the result of the application of phenol as wet dressing in a percentage of from 1 per cent to 5 per cent. Harrington⁶² states that the injury from pure carbolic acid is less serious than from weak solution. The action of the weak solution is insidious. Le Clerc⁶³ emphasizes the fact that in cases of phenol poisoning generalized symptoms, such as hallucination, excitement, delirium, and high fever may be present. It is evident that neither phenol nor any of its derivatives should be used as a dressing in the treatment of wounds.

Chutzelsohn⁶⁴ has irrigated wounds with hot water (36° to 40°C), with very good results. The active hyperemia which is thus produced he considers very beneficial. Ebeling⁶⁵ demonstrated that the rate of wound healing was greatly influenced by the temperature. Working with alligators he found that an increase of 10° C. in the temperature doubled the rate of healing. Rieder²⁵ studied the reaction of blood vessels to various stimuli and the effect which these stimuli have on normal healing. From his studies he divides arterial hyperemia into two types: (1) those which are produced by the application of heat (water 38° to 40° C.) and (2) those which are produced by irritating substances. The former he terms "paralytic or warm hyperemia"; the latter he terms "active or irritative hyperemia." The greatest degrees of hyperemia were obtained in the irritative type produced by the use of a hot fan, followed by the application of ice, or the application of steam followed by ice. In those wounds in which the hyperemia was most marked healing was most rapid. Rieder²⁵

found that wound healing was affected by division of the sympathetics by division of the dilator nerves combined with sympathectomy, by stimulation of the dilators combined with sympathectomy, and by various types of skin irritation.

Within recent years numerous antiseptics, especially dye stuffs, have been introduced into surgery. During the World War introduction of chemicals of the chlorine group as antiseptic materials in surgery marked definite progress in surgical technique.

"All the antiseptics of this group are characterized by chemical instability in the presence of organic matter and, therefore, conditions favorable for their use must include either provision for their frequent renewal or the use of some immiscible solvent for the solvent so that the active compound may be gradually liberated." (Dakin and Dunham)⁶⁶. The antiseptics of the chlorine group are effective because of their ability to yield chlorine, which combines with the protein of the microorganism, destroying the bacterium. The antiseptics of the chlorine group are (1) hypochlorous acid and its salts; (2) chloramine T (sodium toluene sulphonchloramide); (3) dichloramine T (toluene sulphondichloramide). Dakin's solution is the antiseptic of the chlorin group which has been most extensively used. This solution is a slightly alkaline (4.5% to 5½%) solution of hypochlorite of sodium. This percentage must be maintained because a solution weaker than a .4 per cent solution is insufficiently active, whereas one stronger than .5 per cent is irritating and caustic. Dakin's solution, when applied in the proper concentration is non-irritating to those wounds in which there is an exudate. It is essential that Dakin's solution be prepared daily, as it is unstable and deteriorates rapidly. The solution should not be heated above 37°C, and must not be used in combination⁶⁶ with iodine, as the combined actions of the two halogens is irritating.

Dakin's solution should be used only according to the technic of Carrell⁶⁷, which consists of introducing the freshly prepared Dakin's solution into the wound by means of small tubes which reach all recesses of the wound. The arrangement of the tubes should be such that the liquid may spread readily over the whole surface of the wound. Dakin's solution should never be used as a wet dressing, nor as an irrigating solution. It is also important in the treatment of wounds that the surrounding epithelium be protected by vaseline strips. Clinically, Dakin's solution, when used according to the correct technic, is not only bactericidal, but is also of great value in loosening sloughs and removing exudate from wounds. The sloughs are loosened probably through the action of tryptic ferments. These ferments result from the destruction of the leukocytes caused by the Dakin's solution⁵⁵. During the course of treatment, smears are made from the wound every 2 to 3 days. These specimens are fixed, stained, and examined by means of the oil immersion lens. The number of organisms present in a microscopic field are counted. When the smear shows no organisms, or when only one organism to five or six fields is found, the wound may be considered sterile enough for secondary suture. During the World War it was customary in a number of base hospitals to require three successive negative cultures, the last being controlled by culture, before a secondary suture was performed. The average time required for badly infected wounds to become sterile was 17 days⁴⁴.

The use of Dichloramin T has been advocated by a large number of authors because of its relative stability and its non-irritating qualities. Sweet⁶⁸, in 1917, reported its use in war wounds. Recently Adams⁶⁹ reported beneficial results obtained from the use of this substance over a period of seven years. He advises a 5 per cent solution instead of the 20 per cent solution as advocated by Sweet. To 25 grams of dichloramin T crystals enough chloreosane is added to make 500 grams by weight. Dichloramin

T should be carefully prepared. The utensils employed in preparing the oily solution should be sterilized in the hot air sterilizer as water precipitates the amine (Cohn)⁷⁰. The solution must be kept in dark bottles and used only when clear, as cloudiness is caused by an accumulation of crystalline deposit of toluene sulphonamide and indicates decomposition of the solution^{66 71}.

Within recent years numerous other antiseptics have been advocated in the treatment of wounds. On the continent such substances as flavine, tryptaflavine and rivanol have been used with varying and rather indefinite results. In America the two most widely advocated substances are mercurochrome, 220 soluble, and hexylresorcinol, or S. T. 37. Through the influence of Hugh Young⁷², mercurochrome has gained a firm foothold in the treatment of wounds. Recently, Sanner and Hill⁷³, working in Young's laboratory, reported beneficial effects obtained by the use of mercurochrome in localized infections. Wright⁷⁴ has shown that mercurochrome is of little or no value as a bactericide for the bacillus pyocyaneus, but that it is as effective as iodine in destroying staphylococcus aureus. Rodriguez⁷⁵, in comparing mercurochrome and iodine, as antiseptics for the mucous membrane of the mouth, concluded that mercurochrome in a 2 per cent aqueous solution is too ineffective to be used as an antiseptic. A 5 per cent solution of mercurochrome, alcohol and acetone, possesses definite advantages over the aqueous solution but is ineffective in such a large percentage of cases that it must not be considered as an ideal antiseptic for the buccal cavity.

Leonard and Feirer⁷⁶ advocated the use of hexylresorcinol in a solution of water and glycerine. This preparation is known as ST. 37, which indicates a surface tension of 37. This dilution of hexylresorcinol was chosen because of its low surface tension, enabling the bactericide to attack the organisms more readily. These same

authors report the effect of this substance on infected wounds.⁷⁷ The wounds which contained the various pyogenic organisms were treated with S. T. 37. Cultures taken at 1, 2 and 5 minutes after the application of the bactericide to the wound were invariably sterile. In contrast to these results Allen and Wright⁷⁸ found that S. T. 37 was not effectively bactericidal for bacillus pyocyaneus in 48 hours or less, for staphylococcus aureus in less than 90 minutes, but that the substance destroyed streptococcus hemolyticus in less than 15 minutes.

From the above it would appear that the use of antiseptics in wounds is of relatively little value. Flemming⁵⁵ states: "In view of the observations which I have made, and which are quoted above, venture to suggest that the antiseptics at present in use will only exercise a beneficial effect in a septic wound if they possess the property of stimulating or conserving the natural defensive mechanism of the body against infection, and if such a thesis be true, then it brings the antiseptic and the physiological treatment on to the same basis, and it makes it necessary in the estimation of the value of an antiseptic to study its effect on the tissues more than its effect on the bacteria. . . ." "It is very difficult for the surgeon not to be deluded into the belief that he has in the antiseptic a second string to his bow, and consequently it will tend to make him less careful in his surgical treatment of the wound. All the great successes of primary wound treatment have been due to efficient surgery, and it seems a pity that the surgeon shall wish to share his glory with a chemical antiseptic of more than doubtful ability."

The physiological therapy of wounds is probably the best method of treatment. This consists of physiologic rest of the part, obtained by splinting; the building up of resistance of the individual; the production of a local hyperemia; and the application of hypertonic solutions to the wound.

Gaza⁷⁹ believes that the mere hypertonicity of a solution is not responsible for the beneficial effects obtained. He employed the following solutions, in 10 per cent concentration: potassium chloride, sodium chloride, sodium sulphate, calcium chloride, magnesium chloride, magnesium sulphate. He found that solutions of sodium chloride produced a marked increase in size of the granulation tissue so that it reached from 2 to 4 millimeters above the surface of the skin. Granulation tissue which was treated with calcium chloride solutions shrunk within a few hours. The secretion from the wounds treated with sodium chloride solutions became more profuse and purulent, whereas that from the wound treated with calcium chloride solutions became more profuse and purulent, whereas that from the wound treated with calcium chloride solutions became less in amount and serious in quality. The other salts had relatively little effect on the wounds. Magnesium sulphate, however, was detrimental at times. From these results Gaza⁷⁹ concludes that hypertonic salt solutions are beneficial in the treatment of wounds not because of the hypertonicity but because of the ionization of the wound. He believes that the cation is responsible for the beneficial effect; sodium salts make the cells more permeable, whereas the calcium salts make the cells less permeable. Gaza⁷⁹ advises the application of sodium salts in those wounds in which there is considerable defect and in which it is desired to have an increase in the amount of granulation tissue. As calcium salts are much more beneficial in cases in which epithelialization is desired, these should be employed after the wound is filled with granulations. Flemming⁵⁵ observed that following the use of hypertonic salt solution (5 per cent sodium chloride) that the wound secretion was markedly increased. This he believes is desirable, as in this way fresh serum is extracted from the granulation tissue, which increases the antitryptic power of the wound. Hyper-

tonic salt solution, also because of its action on the leukocytes, increases the tryptic power of the wound, which is beneficial in those cases in which there is considerable slough. Recently Schueck⁸⁰ has advanced the theory that the effect of calcium in a wound is comparable to the action of the sympathetic nervous system, whereas the effect of the potassium salts is comparable to that of the parasympathetics. He believes that in inflammation there is a relative increase in the amount of potassium, whereas after the subsidence of the inflammation, the potassium-calcium balance is again obtained.

In order to prevent the accumulation of secretion in wounds the frequent change of dressing is of great value, especially in those in which there is considerable discharge. As Wright⁵² has emphasized, the early closure of a wound, *i. e.*, the approximation of the wound edges and the production of hyperemia by means of heat or contrast baths is desirable.

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MEDICAL SOCIETY MEETINGS.

The success of the recent Louisiana State Medical Society Meeting held last month was due to several factors. In the first place everyone connected with the arrangements of the meeting from President Menville and Chairman Gelpi down to the office boy of the Society, worked with enthusiasm, whole heartedly, and with personal sacrifice to make the meeting the most interesting and most instructive ever held. In the second place the Chairmen of the different Committees were selected with peculiar felicity and appropriateness; it would have been almost impossible to pick out any men who would have functioned more efficiently than the Chairmen. Thirdly

the scientific exhibit represented a real scientific display and in the fourth place, but a most important consideration, the essayists on the program and the discussors of their papers had prepared their material in a more careful and thorough manner than is usually the cast at State Meetings. Lastly the hosts of the meeting, one and all, entered into the occasion with the same spirit with which the visitors came: to learn something, to enjoy much and to renew old friendships.

It is our earnest wish that our sister society, the Mississippi State Medical Association, may have as splendid a meeting as did the Louisiana State Medical Society. There is every reason to believe they will. The scientific program is excellent, the time of year propitious, the place of meeting a delightful city and the Gulfport hosts a most charming and enthusiastic group. We feel confident that those members who are present will have a magnificent time, while the poor unfortunates who perforce are obliged to be absent, will miss much.

NEW PRESIDENT OF THE LOUISIANA STATE MEDICAL SOCIETY

Dr. Gouaux of Lockport, Louisiana, was elected head of the State organized medicine at its recent meeting in New Orleans. The election of Dr. Gouaux represents a spontaneous recognition by members of the State Society of a man who has done much for the organization in the State. For years the new president has represented the Third Congressional District and is responsible for organizing each and every parish in his district. He has been interested in the State Medical Society itself, and is a regular and always-present attendant at the yearly meetings.

Frank T. Gouaux was born at Natchitoches in 1883, and received his preliminary education in New Orleans. He graduated from the Medico-Chirurgical, University of Pennsylvania School, Philadelphia, 1906, took a Master's Degree in Loyola University in 1909. After serving as an interne

in the Medico-Chirurgical Hospital in Philadelphia, he settled in Lockport where he has practiced ever since. In addition to his activity in medical affairs Dr. Gouaux has been prominent in the local civic and business affairs of his home town. He has been President of the Lockport Association of Commerce as well as a member of this organization for some years.

In the selection of their new president the State Society has chosen well; for the next year a man will represent it who is not only an active, integral force in the organization but one who has been successful in medicine, business and all else that he has undertaken. The Journal also extends its warm congratulations to the new head of the Louisiana State Medical Society upon the honor that has been conferred upon him.

SYPHILIS AND DIABETES.

Syphilis is an ubiquitous disease, and while diabetes mellitus is considerably less frequent in the general population, nevertheless it is said to be present in approximately one out of every hundred of the population. On account of the frequency of these two diseases it necessarily follows that considerable interest has arisen as to the effect that the one disease has on the other, and particularly as to whether there is any genetic relationship of syphilis to diabetes. This argument commenced some 75 years ago and has continued up to the present time. Lemann* has presented a most thorough review of the literature in a recently published, most complete discussion of the whole subject. He notes that there is extremely good clinical and postmortem evidence to show that diabetes may in some cases be produced by syphilitic diseases of the pancreas; a rare occurrence however, and one which is extremely unlikely to happen to the syphilitic patient. Diabetes, while attributed at times to syphilis of the central nervous system, is never secondary

to this syphilitic manifestation. Needless to state the occurrence of one or the other of the two diseases during the course of that disease which had not been previously present effects unfavorably the subsequent history of the case. While the progress is not as seriously effected as one would expect when there is an association of two such severe diseases as syphilis and diabetes, nevertheless there is an effect on the primary disease which is distinctly deleterious. One of the interesting observations which is made is that the diabetic with syphilis is much more likely to develop arterial diseases associated with gangrene than is the non-syphilitic individual with diabetes.

When one considers the frequency with which syphilis attacks the central nervous system, the cardio-vascular system, the liver and other important organs of the body, one is struck by the fact that the glands of internal secretion possess a peculiar freedom from the disease. Proof of this statement is substantiated by the pancreas, with its dual functions, as diabetes, the expression of disease of the internal secretory portion of the gland, is rare in the syphilitic.

ANTI-MALARIA MEDICATION.

Self medication is one of the habits and customs of the American people. This pleasant indoor and outdoor and all-the-year-round sport might be encouraged if the self medicator knew what was the matter with himself, if he knew what drug he was taking or why he was so dosing himself. Unfortunately he invariably mis-diagnoses his own case and still more unhappily the medicinal preparations he is able to buy in the open market which he thinks would be of benefit are also frequently fakes, misbranded or mislabeled compounds or shot-gun cure-alls. Aside from the question of mis-diagnosis and inefficient and incorrect treatment, there is no reason why the average individual should not doctor himself, particularly so if he wishes to live only to an immature, young age.

*Lemann, I. I.: The relationship of syphilis and diabetes to one another. *Am. J. Syph.*, 13:70, 1929.

As an example of the statement made above concerning inadequate medication, the United States Department of Agriculture through its Food, Drug and Insecticide Administration, has shown that extremely few of the preparations on the market labeled for the treatment of malaria contain sufficient quinine to constitute adequate treatment. The Department announces that it is only to take active steps in the immediate future to effect suitable changes in the formulas for the various preparations on the market labeled for the treatment of malaria which do not contain adequate quantities of the cinchona alkaloids. It is a great pity that the Government can not order these preparations off the market entirely. Even if they are made sufficiently active to meet the requirements for proper treatment of the disease, innumerable individuals will take the preparation with the belief that they have malaria when they have not, while a very large per cent of those individuals who may perhaps have the disease will take dosages totally insufficient to destroy the plasmodium. From the above evidence it is possible to deduct what has long been known: The self medicator thinks he has a disease, and usually he has not; but if he does, he will most certainly not affect a cure by doctoring himself.

THE NEW OFFICERS OF THE LOUISIANA STATE MEDICAL SOCIETY

At the last meeting of the House of Delegates of the Louisiana State Medical Society, Dr. Hermann Bertram Gessner was unanimously elected to the position of President-elect in the organization; a real tribute to a beloved physician, a scientific and learned practitioner and teacher of medicine.

The First Vice-President elected was Dr. C. M. Horton, one of the best known physi-

cians in the southern part of the state and a man who has been deeply interested in the welfare of the organization.

Dr. Hiram W. Kostmayer was elected to the position of Second Vice-President. Dr. Kostmayer needs no introduction to the physicians of New Orleans as he has already served a term as President of the Orleans Parish Medical Society during which term of office, under his leadership, much was done to advance the standards of the Parish Society.

Dr. Roy B. Harrison, who was elected Third Vice-President, likewise needs no introduction to the doctors of the State. For years Dr. Harrison has been the very efficient and able Secretary of the Louisiana State Board of Medical Examiners. It is largely through his efforts and those of his Board that quacks and cults have been kept out of the State of Louisiana.

The only change that has occurred in the councilors of the Society was in the election of Dr. John McKowen as Councilor of the Sixth Congressional District.

The present members of the Committee on Public Policy and Legislation, of the Committee on Publication, of the Committee on Medical Defense, of the Committee on Hospitals and of the Committee on Health and Public Instruction were renominated and elected.

Dr. Randolph Lyons and Dr. W. H. Seemann were elected on the Journal Committee.

Dr. J. Q. Graves was nominated as Delegate to the American Medical Association with Dr. D. I. Hirsch as Alternate.

The next place of meeting will be Shreveport, a city which in the past has given a most royal welcome to the Society when it met there.

HOSPITAL STAFF TRANSACTIONS

JOINT CLINICAL MEETING, ORLEANS PARISH MEDICAL SOCIETY AND CHARITY HOSPITAL STAFF, MARCH 25, 1929.

The meeting was called to order by Dr. E. D. Fenner in the Miles Amphitheatre, Charity Hospital.

Dr. E. L. King presented as his first case a primipara whose pregnancy was complicated by the presence of an hookworm infection. The condition had been diagnosed in the course of a routine feces examination being conducted in all obstetrical cases on Dr. King's service. In 140 patients so examined there had been 7 positive hookworm cases. All had received thymol with no ill effects.

The second case shown by Dr. King was a 40-year-old multipara almost at term, whose pregnancy was complicated by the presence of a large goitre and a hookworm infection. The goitre had been present for 20 years. Her basal metabolic rate was +44, and she had had no treatment. Dr. King asked for discussion on these two cases, especially regarding their management and treatment.

In the discussion which followed, Dr. E. Bass asked whether any stool examinations had been made upon any of the newly born infants delivered from hookworm infected mothers. She recounted her observation of having found hookworm infection in a two weeks old infant. Dr. King replied that such examinations had been attempted but had not been made as yet. Dr. E. Bass also recounted the fact that she had seen several cases of so-called pernicious anemia which later proved to be cases of hookworm instead.

Dr. Faust spoke of the possibility of cases with feces positive for intestinal parasites being without any clinical symptoms.

In regard to the therapy, Dr. Cole recommended carbon tetrachloride as the drug of choice. Dr. Rucker spoke of the Public Health aspect of the disease.

A case of exophthalmic goitre was presented by Dr. J. Snelling. This case had been operated and almost all of the gland removed. She had received Lugol's solution prior to operation, and it had been continued for quite a long time following it. Her exophthalmos was still marked, and her basal metabolic rate remained somewhat elevated. Dr. Guthrie and Dr. Maes discussed the classification of goitre, Dr. Maes maintaining that in his opinion the classification of Plummer, while it left considerable to be desired, was at present the best and most practical one available. Dr. J.

Danna discussed the case, and mentioned that he thought the use of Lugol's solution actually converted an exophthalmic goitre into a colloidal goitre, in so far as the gland structure was concerned. This, he thought, explained the discrepancy in the pathological findings in the case under discussion and in other cases.

Dr. Fenner showed two very unusual congenital deformities. The first was a bilateral epiphyseal coxa vara in a young female negro. The second case was one of marked bilateral club feet and bilateral congenital dislocation of both knees and hips.

Dr. Rucker, of the Marine Hospital, read a report of the first case of endemic typhus fever, or Brill's disease, in Louisiana. This case had originated at the Marine Hospital, and was thought by Dr. Rucker to suggest the possibility of some other vector than the body louse as being responsible for the disease.

Drs. Fossier, Danna and Musser discussed the case.

A young female child, shown by Dr. A. Mattes, had been relieved of enuresis by the installation of 2 ounces of silver nitrate into the bladder twice weekly.

The second case presented by Dr. Mattes was of a broncho-renal fistula following a pyelonephrosis. A nephrotomy had been done.

Dr. Mattes then presented three cases of chronic granuloma of the vulva treated by vulvectomy. Dr. Reed discussed the cases.

Dr. Otis closed the meeting with two cases of types of psychomotor manifestations.

WILLARD R. WIRTH, M. D.

CHARITY HOSPITAL MEDICAL STAFF MEETING, MARCH 19, 1929.

The first case presented was an aneurism of the thoracic aorta in a colored male, by Dr. F. Fenno. There was a history of the patient having been struck on his back by a heavy falling object. Three months following this accident he began to complain of a dull ache over the thorax, along with certain sensory and motor symptoms in the left leg. When seen there was a complete motor paralysis of both lower extremities, absent abdominal reflexes, and a retention of urine. Over the third to the seventh dorsal spines there was a pulsating mass. The blood Wassermann was weakly positive. Roentgenograms showed marked erosion of the vertebrae by the aneurism. The

case was of interest because of the history of injury and the marked pressure signs and symptoms.

Dr. N. Thiberge discussed asthma and hay fever, dwelling upon the use of vaccines and pollen extracts in these conditions. He showed a series of lantern slides to demonstrate the clinical results from the use of these, and discussed the dosage and selection of these agents.

One autopsy was brought before the staff. A tentative diagnosis of coronary block had been made. At autopsy the aorta was found to have ruptured into the pericardial sac.

WILLARD R. WIRTH, M. D.

VICKSBURG SANITARIUM AND CRAWFORD
STREET HOSPITAL STAFF MEETING,
MARCH 11, 1929.

Abstract: Post-Mortem Report—Generalized Melanoblastomatosis—Dr. Leon S. Lippincott.

White, male, age 57, occupation, lawyer. Autopsy performed February 23, 1929.

General Inspection: Development of skeleton and muscles, powerful; general nutrition, moderately emaciated; left eye missing. Otherwise, not remarkable. Superficial arteries calcareous.

Abdominal Cavity: Enlarged lymph nodes, gray and black, greater curvature of stomach, region of common bile duct, head of pancreas, mesentery and black nodule in perirenal fat, right.

Liver, chocolate brown, mottled gray, with numerous black nodules, surface and throughout sub-

Pancreas enlarged at head, with numerous adhesions.

Thorax: Sternum shows much brown material in medullary portion, protruding through posterior surface; ribs similar.

Left pleura contains 1 liter slightly turbid fluid.

Right lung shows numerous black areas; lower lobe partially consolidated. Left lung similar but no consolidation.

Heart shows calcareous deposits in upper left ventricle; coronary arteries markedly calcareous but patent. Some calcareous deposits in first inch of aorta.

Deep Strictures: Vessels below bifurcation of abdominal aorta calcareous. Rather numerous black nodules along thoracic aorta. Thoracic vertebrae contain numerous black nodules.

Microscopic Examination: Melanoblastoma of lungs, rib, liver, spleen, perirenal fat, and lymph

nodes. Broncho-pneumonia, lower lobe, right; acute pancreatitis; considerable calcareous infiltration of thoracic aorta; parenchymatous degeneration of kidneys.

Clinical History: Entered hospital November 21, 1928, complaining of loss of strength, gradual for past four months; dyspnea on exertion; confined to bed for past three weeks. History of good general health except that left eye was removed in 1911, and was microscopically shown to have melano-sarcoma; no symptoms since from eye as far as known.

Physical Examination: Temp. 101°F., pulse 110, respiration 18; heart enlarged; maxillary sinusitis. Blood: Hb. 62%; erythrocytes 2,488,000; leukocytes 17,000; differential leukocyte count—small lymphocytes, 13%, large lymphocytes, 5%, neutrophils, immature, 34%, mature, 48%. Urea nitrogen was normal and Wasserman and Kahn tests negative. Sedimentation rate increased.

Subsequent: Blood transfusion was performed and sinusitis treated with some improvement clinically and in blood picture temporarily. Removed to home on December 23 at own request. Cachexia became more marked and weakness extreme. Death February 22.

Special Interest: Long period between removal of eye and symptomatic recurrence—nearly 18 years.

PROCEEDING OF THE APRIL MEETING
HOTEL DIEU STAFF.

The monthly meeting of the Hotel Dieu Staff was held April 15, 1929, Dr. J. T. Nix presiding.

The scientific part of the meeting was as follows: Exhibition of a case of cavernous sinus thrombosis by Dr. T. J. Dimitry and Dr. Guy Jones. This very interesting and unusual case was illustrated by anatomical drawings and was discussed by Drs. Danna, J. E. Landry, Maurice Couret and H. Dupuy, Dr. Dimitry closing the discussion.

Another case was shown, one of diphtheria complicated by lymphatic leukemia, the patient of Dr. Ruth Aleman, a little girl ten years of age had been sent to the hospital a week previously with the above diagnosis. Dr. Maurice Couret opened the discussion and exhibited several blood smears made of this case; discussion by Drs. Val Fuchs, J. B. Guthrie, J. T. Nix and J. A. Brennan.

Dr. Lucien Fortier reported a case of thymoma with complicating hyperthyroidism in a man of twenty-seven years. Clinical cure resulted from treatment by radiation of chest and thyroid re-

gion. Patient is now well one year after first seen.

Two cases of aneurysms of the arch of aorta were demonstrated, one of the secular type and the other one of general dilatation.

A case of hepatic abscess with marked upward displacement of right diaphragm, post operative pneumonia and pleurisy with pneumonia.

Dr. Aldea Maher, junior pathologist, presented a series of pathologic sketches and paintings she had made in the laboratory. The group consisted of appendices, gall bladder, ovaries, tubes kidneys in various stages of inflammation; also diverticulum of the appendix with microscopic cross section and hernia showing strangulation and cysts of the sebaceous type and of the fallopian tube (tubal pregnancy).

Benign tumors of uterus (polypus and leiomyomata) and of fat (lipoma) malignant tumors of the breast, intestines, ovary, uterus and kidney (hypernephroma).

This work of Dr. Maher was very warmly received. The Chair announced that the New Orleans Gynecological and Obstetrical Society would hold their next meeting as our guests and also stated that the weekly Pathological conference would be held on Mondays at 11:00 a. m. with Dr. Maurice Couret, Senior Pathologist, and Staff leading the discussions.

The hospital report and the deaths occurring during the month were very fully discussed.

LUCIEN A. LE DOUX, M. D.

TRANSACTIONS OF THE CHARITY

HOSPITAL SURGICAL STAFF

The regular monthly meeting of the staff was held on March 20, 1929, with Dr. Graffagnino presiding. Routine business was carried out. After this the regular scientific session followed.

The usual monthly statistical report was at hand. A copy of this report is sent, each month, to the various members of the staff for their review and discussion.

A case of bilateral hypernephroma, which had been completely autopsied, was first brought up for discussion. An interesting feature of this case was the fact that one kidney was completely involved, whilst the other showed involvement of the upper pole only. The case was liberally discussed and a number of points of interest were brought out.

The second and third cases were brought up together in order that they might be simultaneously discussed. The first was that of a white male who died of a lobar pneumonia and empyema; and the other a white male child, 13 months of age, who died, also, of a broncho-pneumonia and empyema. Many practical points were brought out in the discussion. The methods of handling such cases came in for due consideration.

A white male, aged 65 years, dying of a fibro-sarcoma of the mesentery, was the last patient presented. During the discussion it was pointed out that primary sarcoma of the mesentery is rare, and that this case, therefore, presented an unusual clinical curiosity.

FRANK LORIA, M. D.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of April besides the regular meeting of the Board of Directors, the Society held one special meeting and one joint Scientific and Quarterly Executive Meeting.

The meeting held April 8, was a special meeting and public discussion on Cancer with the following program:

1. Introductory remarks by the President, Dr. E. D. Fenner.
2. The nature, course and present day conception of the cause of cancer, Dr. C. W. Duval.
3. Exhibit of the Canti films preceded by a brief explanatory introduction, Rudolph Matas, M. D.

Exhibit of the Canti films, under the direction of Dr. I. M. Gage, Chairman, Scientific Essays Committee.

[Through the courtesy and favor of the American Society for the Control of Cancer the Canti films (R. G. Canti, St. Bartholomew's Hospital and Cambridge University, London,) were exhibited. This unique moving picture shows cell life in living cultures of normal and cancer tissue. The cells, enormously magnified, appear in all the detail of their motile, reproductive and aggressive activity. In addition, the effects of radiation with radium emanation upon the life of normal and cancer cells are shown vividly as the moving microscopic pictures are projected on the screen.]

5. Concluding remarks by the president, Dr. E. D. Fenner.

This meeting was exceptionally well attended, the hall being filled to capacity and many people were turned away. A second showing of the Canti films was given the next day.

At the joint Scientific and Quarterly Executive Meeting the program was as follows:

“Intestinal Diverticula,” by Dr. J. Holmes Smith, Jr.; discussed by Drs. Alton Ochsner, Chaille Jamison, Urban Maes, L. J. Menville, E. D. Fenner, T. B. Sellers and D. N. Silverman.

“Allergic Reaction,” by Dr. Narcisse F. Thiberge; discussed by Drs. F. M. Johns, J. A. Devron and E. D. Fenner.

“Serial Pyeloureterography, Its Value in Medicine”—lantern slides, bu Dr. A. Mattes; discussed by Dr. W. A. Reed and Dr. Smith.

Following the scientific program the Society went into Executive Session when the reports of the Secretary, Treasurer, Librarian and the special and standing committees for the first quarter, 1929, were read.

During the past month the following doctors were elected to active membership:

Drs. Jos. N. Ane, Ralph J. Christman and Park Howell.

REPORT OF TREASURER

Actual book balance 2/28/29.....	\$4,490.14
Receipts during March	1,314.79
Receipts for insurance	773.07
	<hr/>
	\$6,578.00
Expenditures	\$3,630.63
	<hr/>
ACTUAL BOOK BALANCE.....	\$2,947.37

REPORT OF LIBRARIAN

Sixty-one books have been added to the Library during March. Of these 41 were received by binding, seven by gift, one by purchase and twelve from the New Orleans Medical and Surgical Jour-

nal. A list of new titles of recent date is appended.

Two bibliographies have been added to our files on subjects as follows: Amebiasis; Distribution and Incidence Encephalomyelitis Following Vaccination.

The work of sorting and arranging the gift journals and books from Dr. Van Wart, is progressing nicely and will, we hope, be completed before May 1. A number of valuable files is being added to our shelves from this source. A list of donors for the month is as follows:

Columbia University College of Physicians and Surgeons, Medical College of South Carolina, Drs. J. H. Musser, C. Jeff Miller, P. T. Talbot, Haidee Weeks, Iowa State Library Medical Department, Milwaukee Academy of Medicine, University of Alabama School of Medicine and Dr. E. H. Walet.

NEW BOOKS—MARCH

- Alleman—Medical Interpreter, v. 10, 1929.
- Cort—Studies on Hookworm, Ascaris and Trichuris in Panama, 1929.
- Henry Phipps Institute—21st Annual Report, 1928.
- Lynch — Activities Concerning Mobilization Camps, 1928.
- Peter—Extraocular Muscles, 1927.
- Rice—Race Hygiene, 1929.
- Burn—Methods of Biological Assay, 1928.
- Fowweather — Clinical Chemical Pathology, 1929.
- Institute of Child Guidance—Report, 1928.
- Burkhart—Care of the Mouth and Teeth, 1928.
- Lewis—What Everyone Should Know About Eyes, 1928.
- Allen—Diabetes and its Treatment, 1928.
- Kahn—Kahn Test, 1928.
- Monrad-Krohn—Clinical Examination of the Nervous System, 1928.
- Donnie—Syphilis, 1928.
- Rowe—Handbook of the diabetic, 1928.
- Goldzieher—Adrenals, 1928.
- Bassler—Diseases of the Intestines, 1928.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

PARISH MEDICAL SOCIETY OFFICERS FOR 1929

The following Parish Medical Societies have elected officers for 1929 as follows:

Beauregard Parish: President, Dr. R. L. Love, DeRidder, La.; Secretary-Treasurer, Dr. Thos. R. Sartor, DeRidder, La.; Delegate, Dr. F. R. Frazar, Merryville, La.

Bossier Parish: President, Dr. J. B. Hall, Alden Bridge, La.; Secretary-Treasurer, Dr. C. M. Tucker, Haughton, La.

Acadia Parish: President, Dr. H. L. Gardiner, Crowley, La.; Vice-President, Dr. M. L. Hoffpauir, Crowley, La.; Secretary-Treasurer, Dr. A. R. Morgan, Crowley, La.; Delegate, Dr. J. W. Faulk, Crowley, La.; Alternate, Dr. A. B. Cross, Crowley, La.

Washington Parish: President, Dr. U. S. Hargrove, Bogalusa, La.; Vice-President, Dr. A. W. Martin, Bogalusa, La.; Secretary-Treasurer, Dr. J. W. Pafford, Bogalusa, La.; Delegate, Dr. W. W. Warner, Bogalusa, La.; Alternate, Dr. J. H. Slaughtor, Bogalusa, La.

MEETING OF THE LOUISIANA STATE PEDIATRIC SOCIETY

The annual meeting of the Louisiana State Pediatric Society was held in New Orleans, Monday, April 8, 1929, in accordance with the usual custom of meeting at the same place and during the same week as the meeting of the Louisiana State Medical Society.

The meeting was called to order at 10 A. M. by Dr. L. R. DeBuys, Chairman. There were 20 active members present, together with a large number of visitors. The program was very instructive and the members and visitors entered into the discussions freely. Luncheon was served at the Louisiane Restaurant.

Program.

Morning Session.

1. "Congenital Malformations of the Intestinal Tract," by Dr. Charles J. Bloom, New Orleans, La.

2. "Probable Primary Ovarian Sarcoma, with Multiple Metastasis in a Girl Four Years Old," by Drs. J. A. Crawford and L. A. Hebert, Lake Charles, La.

3. "The Role of Banana in the Diet of Infants," by Dr. L. von Meysenbug, New Orleans, La.

Afternoon Session.

(Case Reports)

1. "Gastric Ulcer in a Girl Three Years Old," by Dr. Maud Loeber, New Orleans, La.

2. "Pyloric Stenosis and Influenzal Meningitis," by Dr. John Signorelli, New Orleans, La.

3. "Celiac Disease," by Dr. E. A. Socola, New Orleans, La.

4. "Myelo-encephalitis Following Small Pox Vaccination," by Dr. Julian Graubarth, New Orleans, La.

The society adopted a resolution which provides for an additional meeting in October of this year, the date and place of the meeting to be fixed by the Executive Committee.

The following officers were elected and installed for the ensuing year:

Dr. J. A. Crawford, Lake Charles, La., President.

Dr. John Signorelli, New Orleans, La., Vice-President.

Dr. C. T. Williams New Orleans, La., Secretary-Treasurer.

A RESOLUTION ADOPTED ON MARCH 28, 1929, BY THE ST. LANDRY PARISH MEDICAL SOCIETY

"Whereas: It hath pleased Almighty God to remove from our midst two valued members of this Society, Dr. J. B. Guillory of Grand Prairie, and Dr. Lawrence Daly of Bellevue.

"Resolved: While bowing in humble submission to the Divine Will, we deplore the loss of valued friends and cherish their memories as honest and conscientious citizens, able and humane physicians, whose loss has been keenly felt in their respective communities. 'May they rest in Peace.'

"Further Resolved: That this Resolution be spread on the minutes and a copy sent to their families and to the Louisiana State Medical and Surgical Journal."

SUMMER CLINICS, CHICAGO MEDICAL SOCIETY

The Chicago Medical Society will hold a two weeks' clinics at Cook County Hospital June 17-29. Members of the hospital staff will give these clinics on the following schedule:

8 to 10 a. m., Medical and surgical clinics in amphitheatres.

10 to 12 a. m., Ward walks.

12 to 1 p. m., Luncheon.

1 to 3 p. m., Medical and surgical clinics in amphitheatres.

3 to 5 p. m., Ward walks.

The amphitheatre work will be devoted to medical and surgical dry clinics and lectures. Two amphitheatres will be used simultaneously, one for medical and one for surgical clinics. Each clinic will be one hour in length, thus giving four medical and four surgical clinics daily. Operative work will be done during the hours devoted to ward walks. The clinical work will be confined largely to general medicine and surgical subjects.

It is planned to hold six meetings to be addressed by speakers other than members of the hospital staff on such subjects as heart disease, tuberculosis, obstetrics, physiotherapy, gastro-intestinal disorders and possibly diabetes.

A registration fee of ten dollars will be charged to cover the cost of preparing for and conducting the clinics.

For further information apply to the Chicago Medical Society, 185 N. Wabash Ave., Summer Clinics Committee.

There will be a Post-Graduate Course in Ear, Nose and Throat surgery for American Physicians at the University of Bordeaux, France, commencing July 22, 1929.

Dr. Leon Felderman, Philadelphia, Pennsylvania, is in charge of registering the American Physicians for this course.

The greatest honor which the profession of pharmacy can bestow—the Remington Medal—has been awarded by the American Pharmaceutical Association to Dr. Wilbur L. Scoville, chief of the analytical department of Parke, Davis & Co., the Association has just announced.

The award was made for Dr. Scoville's "distinguished service to pharmacy" in acknowledgment of his outstanding accomplishments as chairman of the National Formulary Committee.

GORGAS LABORATORY OPENED AT PANAMA

The Gorgas Laboratory of Tropical Research, founded in memory of the late Major Gen. W. C. Gorgas, who paved the way for the construction of the Panama Canal by eliminating yellow fever along the Isthmus, was formally dedicated.

Dr. Franklin H. Martin of Chicago, chairman of the board of directors of the Gorgas Memorial Institute of Tropical and Preventive Medicine at Washington, came to Panama City especially to take over the new laboratory and supervise the beginning of its work.

The building which houses the laboratory was built by the Panama Government as a medical school, but was never used. It has been lent to the laboratory until permanent quarters can be obtained.

The American Congress last year appropriated \$50,000 annually to support the work in which all Latin-American countries were invited to participate.

Dr. Herbert C. Clark, director of the laboratory, has had long experience in tropical countries, including eight years in the Canal Zone.

Installation of laboratory equipment will take several months, after which research work will begin in earnest upon tropical diseases, especially malaria. Particular attention is being directed to varieties of mosquitoes in different regions.

ALL LATIN-AMERICA TO SHARE

The site of the Gorgas laboratory is just outside the city of Panama in the region of Bella Vista on the seashore. It was donated by the republic of Panama, which also will build the laboratory at an estimated cost of \$750,000. This will cover only the cost of the building. Additional sums will be required for laboratory equipment.

Assurances have been given by many Latin-American Governments that they will contribute to the permanent maintenance of the laboratory. The purpose of the laboratory is to make studies of tropical diseases not only a protection to life and property in the Canal Zone, but also a protection to the United States against the influx of diseases which might become indigenous there.

PRESENT FACILITIES INADEQUATE

The present facilities of Canal Zone hospitals are not adequate for the carrying on of research work, according to members of the Gorgas Memorial Institute.

The purposes of the establishment are explained in a statement by Representative M. M. Thatcher of Kentucky, author of the bill committing this government to its support.

"There are many malignant diseases in the tropics yet to be studied and yet to be understood," he said, "and I suggest that it is of paramount importance that they be studied and understood and aired. Therefore, it is of the highest importance that the United States should do its part to make this laboratory a success."

Among those who are associated with the Gorgas Memorial Institute are Calvin Coolidge, Admiral Cary T. Grayson, Silas Strawn, Bernard Baruch and Surgeon General Hugh S. Cumming of the Public Health Service.

UNITED STATES PUBLIC HEALTH SERVICE

Surgeon J. W. Trask. Directed to proceed from Baltimore, Md., to Washington, D. C., and return, for the purpose of studying plans at the Bureau, now in course of preparation for the new marine hospitals at New Orleans and San Francisco, this with a view to new construction at the Marine Hospital, Baltimore. Mar. 30, 1929.

A. A. Surgeon L. E. McCanna. Relieved from duty at Pitcher, Okla., and assigned to duty at Quarantine Station, New Orleans, La. April 2, 1929.

Surgeon W. C. Rucker. Directed to proceed from New Orleans, La., to Gulfport, Miss., and return, for the purpose of attending the meeting of the Mississippi State Medical Association on May 13-15, 1929. Apr. 5, 1929.

Surgeon W. L. Treadway. Directed to proceed from Washington, D. C., to Philadelphia, Pa., and return, in connection with field investigations of public health,—also directed to proceed to Atlanta, Ga., New Orleans, La., San Antonio, Texas, Los Angeles, Calif., and San Francisco, Calif., Portland, Oregon, Seattle, Washington, Leavenworth, Kansas, Kansas City, Mo., and such other points in the above mentioned states as may be neces-

The following news items, pertaining to activities of the teaching staff of the Graduate School of Medicine of The Tulane University of Louisiana, have been received:

The Semicentennial Meeting of the Louisiana State Medical Society held in New Orleans April 9, 10, 11, 1929, was addressed by:

Dr. C. J. Bloom, "Intestinal Polyposis in Childhood."

Dr. W. R. Buffington, "Ocular Tuberculosis with Report of Cases."

Dr. H. Daspit delivered the memorial address and paid fitting tribute to the deceased members of the organization.

Dr. John Raymond Hume, "Complications of Pyogenic Ear Disease."

Dr. Walter E. Levy, "Clinical Study of Sterility."

Dr. R. C. Lynch, "Sinus Disease in Children."

Dr. Randolph Lyons, "A Few Observations on Transient Auricular Fibrillation."

sary, and return, for the purpose of carrying out the provisions of Public Act 672, being an Act to establish two United States Narcotic Farms, and for other purposes. Mar. 19, 1929.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

SENIOR BACTERIOLOGIST

Applications for senior bacteriologist must be on file with the Civil Service Commission at Washington, D. C., not later than April 24.

The examination is to all vacancies in the Food, Drug and Insecticide Administration, Department of Agriculture, for duty in Washington, D. C., or in the field.

The entrance salaries range from \$4,600 to \$5,200 a year. Higher salaried positions are filled through promotion.

HEALTH REPORT

During the week ending March 30 there were 131 deaths in the City of New Orleans, with the death rate of 16.0. The following week ending April 6 the total deaths were 149, with a death rate of 18.1. The death rate from pneumonia and influenza for the week ending March 30 had decreased to 16 of the former disease and 3 of the latter.

Dr. H. Theodore Simon, "Infantile Paralysis."

Dr. Sidney K. Simon, "The Whys and Wherefores of Non-Surgical Biliary Drainage."

Dr. H. Daspit addressed the School of Occupational Therapy at the State Hospital, Jackson, La., Thursday, April 11, 1929.

On Wednesday, April 24, 1929, the following addressed the meeting of the Association of Surgeons of the Southern Railway System, of which Dr. E. Denegre Martin was Chairman of the Committee on Arrangement:

Dr. Muir Bradburn, "Fractured Thigh."

Dr. Isidore Cohn, "Abdominal Crises."

Dr. H. Daspit, "Nervous System and Its Relation to Industrial Medicine."

Dr. A. C. King, "Fractures About the Elbow."

Dr. H. Theodore Simon, "Prosthesis."

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor

TO THE ENTIRE MEMBERSHIP OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION:

As your president for the 1928-29 term I have found the work both pleasant and profitable. As far as has been practicable I have visited the component societies and find good work done by all.

I regret that it has been impossible to see each society so ask that you accept the will for the deed. I urge full attendance at Gulfport May 14-16 as is humanly possible, for it is at these meetings that we develop our bigger selves, broaden our vision and increase our capacity for doing good to suffering humanity. May I confidently expect to see YOU there?

First of all the presidents of the various County Societies should show their zeal by being present at the Gulfport meeting; next, let the secretaries ALL be there as a matter of extreme interest to them and the fraternity will come up before them. They should have a full, concise and written report. Those officers are the main-spring of the State Association—the ground work of the whole scheme.

We shall also expect a full written report from the various committees not only of finished but of unfinished business.

Let all Delegates who have matters before the House of Delegates or parties who wish to bring anything before the Council have these in due form, in writing, with all data complete, so that they may be acted upon promptly and intelligently. These bodies are always busy and any delay will only slow down the program of the regular meeting.

Each section chairman informs me that he has a full program, which on inspection I find very fine indeed. There is in store for those who attend a session of interest and information.

The Gulfport Committee on Arrangements and

Entertainment have a real treat for all. Bring the ladies along for their program is even better than ours.

Let's pull together for a full, harmonious and profitable meeting.

Cordially and sincerely yours,

(Signed)

W. H. FRIZELL,
President,
Mississippi State Medical Association.



W. H. FRIZELL, M. D.,
President of the Mississippi State Medical Assn.

It hardly seems necessary, as the close of his administration approaches, to introduce our president, Dr. W. H. Frizell of Brookhaven, to the profession of the state. However, it may not be amiss to repeat the short biographical sketch which the Journal published last June.

Dr. W. H. Frizell is the son of the late Dr. W. H. Frizell and Mary Horton, daughter of Dr. Stephen Horton, of Georgia. The senior

Dr. Frizell was a graduate of the New Orleans School of Medicine, now Tulane. He served as Lieutenant and Surgeon in the 12th Mississippi Regiment, C. S. A., and was one of the immortal six hundred who were confined in Charleston, South Carolina, prison in 1865. After the war he practiced for forty-two years at Poplar Creek, Mississippi, where the subject of this sketch was born in July, 1872.

Dr. Frizell received his schooling in the Academy of his native village under the tutelage of the late Dr. J. W. Armstrong. His medical education was had at the University of Nashville. He was graduated from that old institution in March, 1897. In 1901 he received a certificate from the New York Polyclinic in Medicine and Surgery. He practiced at his home village, Poplar Creek, Mississippi, until 1901, when he located in Brookhaven where he has since lived. He has been County Health Officer of Lincoln County for the greater part of the past twenty years. He served for many years as Secretary of the

Tri-County Medical Society, and later as President of that Society.

For several years he has represented the Eighth District in the Council. He is a member of the Southern Medical and American Medical Associations. He has been a member of the medical and surgical staff of the Kings Daughters Hospital in Brookhaven since its organization.

Dr. Frizell's work during the year has measured up to the expectations of those in the Association who have worked with him so long and so agreeably.

THE GULFPORT MEETING

The sixty-second annual session of the Mississippi State Medical Association will be held in Gulfport on May 14-15-16. The local committee on arrangements consisting of W. A. Dearman, E. H. Linfield, and W. P. Sheely announces the selection of the Markham Hotel as headquarters. All general meetings will be held on the Roof Garden of this building. Scientific exhibits will be on the mezzanine floor. As usual the State Radiological Association will meet the evening before the State Association convenes, that is on Monday, May 13, and the place will be the ball room of the Markham.

The luncheon of the Ex-presidents of the State Medical Association will be held in the private dining room at noon, May 15. At 8 p. m., May 15, the annual banquet will be given on the Roof Garden of the Markham. This will be followed by an informal dance.

PROGRAM

Mississippi Radiological Association

Ball Room, Markham Hotel

Monday, May 13, 7:30 p. m.

1. President's Address, W. W. Crawford, Hattiesburg.
2. "Some Interesting Urological Problems," E. H. Linfield, Gulfport. Discussion to be opened by W. L. Britt and F. L. Van Alstine.
3. "Fractures," T. E. Ross, Jr., Hattiesburg. Discussion to be opened by J. W. Barksdale and O. H. Swayze.
4. "The Heart," G. W. F. Rembert, Jackson. Discussion to be opened by J. S. Gatlin and J. B. Howell.
5. "The Modern X-Ray Laboratory," C. R. Stingily, Meridian. Discussion to be opened by J. E. McDill and Cary Day.

Secretary, Geo. E. Adkins, Jackson.

GENERAL MEETING—FIRST DAY

Tuesday, May 14, 1929

Session 9:30 a. m. to 12; 1:30 p. m. to 6 p. m.

Roof Garden, Markham Hotel

OPENING EXERCISES

1. Call to Order, President W. H. Frizell, Brookhaven.
2. Invocation, Rev. R. V. Saylor.
3. Report of Committee on Arrangements, W. A. Dearman, E. H. Linfield, W. P. Sheely.

Section on Eye, Ear, Nose and Throat.

E. LeRoy Wilkins, Chairman, Clarksdale.

1. "Lye Stricture of the Esophagus," D. C. Montgomery, Greenville. Discussion to be opened by H. H. West and E. F. Howard.
2. "Early Recognition of Simple Glaucoma in the Prevention of Blindness," (Lantern Slides), L. S. Gaudet, Natchez. Discussion to be opened by G. H. Wood and A. G. Touchstone.

Section on Medicine

W. A. Dearman, Chairman, Gulfport

1. Chairman's Address, "The Forgotten Doctor," W. A. Dearman, Gulfport.
2. "The Management of Pneumonia in Infants and Children in the Average Home," F. G. Riley, Meridian. Discussion to be opened by T. D. Bordeaux and N. C. Womack.
3. "Syphilis of the Lungs," H. L. Cockerham, Gunnison. Discussion to be opened by G. W. F. Rembert and J. W. Gray.
4. "Achlorhydria with Special Reference to Gall-Bladder Disease," J. P. Culpepper, Jr., Hattiesburg. Discussion to be opened by G. W. F. Rembert and J. S. Ullman.
5. "The Early Recognition and Treatment of Cretinism," G. Y. Gillespie, Jr., Greenwood. Discussion to be opened by J. W. Lipscomb and H. L. McKinnon.
6. "Coronary Artery Occlusion, with Especial Reference to Symptoms," G. W. F. Rembert, Jackson. Discussion to be opened by A. H. Little and Henry Boswell.
7. "Treatment of the Diabetic in the Home," Seale Harris, Birmingham. Discussion to be opened by F. G. Riley and Chas. LeBarron.

8. "Endocarditis," C. L. Simmons, Hazlehurst. Discussion to be opened by J. S. Ullman and E. B. French.

9. "Acute and Chronic Colitis in Infants and Children," Joe E. Green, Richton. Discussion to be opened by R. W. Burnett and H. F. Garrison.

10. "The Treatment of Primary and Secondary Pneumonia," W. L. Little, Wesson. Discussion to be opened by O. N. Arrington and D. W. Jones.

11. "The Recent Epidemic of Influenza, and its Complications," W. L. Stallworth, Columbus. Discussion to be opened by N. S. Dickson and D. W. Holliday.

EVENING SESSION—EIGHT O'CLOCK

Tuesday, May 14, 1929

Roof Garden, Markham Hotel

To Which the Public Is Cordially Invited.

1. Invocation, Rev. W. A. McComb.
2. Addresses of Welcome: On Behalf of the City of Gulfport, Mayor Joseph Milner.
On Behalf of the Harrison-Stone-Hancock Medical Society, W. A. Dearman, Gulfport.
3. Response to Addresses of Welcome, Henry Boswell, Sanatorium.
4. President's Address, W. H. Frizell, Brookhaven.
5. Annual Oration: "The Physician and the Patient: Their Reciprocal Duties," Alton Ochsner, New Orleans.

GENERAL MEETING—SECOND DAY

Wednesday, May 15, 1929

Session 9:00 a. m. to 12:30 p. m.

Roof Garden, Markham Hotel

Section on Hygiene and Public Health.

C. C. Applewhite, Chairman, Jackson.

1. Chairman's Address, C. C. Applewhite, Jackson.
2. "Modern Methods and Measures in Preventive Medicine," F. M. Smith, Vicksburg. Discussion to be opened by J. W. Lipscomb and L. S. Lippincott.

3. "A Practical Child Health Program for a Rural County," J. B. Black, Murfreesboro, Tenn. Discussion to be opened by F. J. Underwood and H. C. Ricks.

4. "The Correction of Physical Defects of Pre-School and School Children in a Rural County," J. H. Janney, Indianola. Discussion to be opened by N. C. Womack and W. H. Anderson.

5. "Oxyperitoneum in the Treatment of Tuberculous Peritonitis," W. B. McCorkle, Colorado Springs, Colo. Discussion to be opened by H. R. Shands and Henry Boswell.

6. "The Responsibility of the Medical Profession in Handling Venereal Disease Problem," Frank L. Van Alstine, Jackson. Discussion to be opened by W. C. Rucker and E. H. Linfield.

7. "Brewers' Yeast As a Prophylactic and Curative Agent for Pellagra," Paul S. Carley, Belzoni. Discussion to be opened by A. K. Barrier and R. D. Dedwylder.

Section on Eye, Ear, Nose and Throat.

E. LeRoy Wilkins, Chairman, Clarksdale.

Special Session—Gold Room, Markham Hotel.

Wednesday, May 15, 1929

Session 9:00 a. m. to 12:30 p. m.

1. Chairman's Address, E. LeRoy Wilkins, Clarksdale.
2. "Indications for Tonsillectomy," H. L. Arnold, Meridian. Discussion to be opened by W. B. Dobson and D. W. Hamrick.
3. "A Few Observations on the Maxillary Sinus," Edley H. Jones, Vicksburg. Discussion to be opened by Robin Harris and D. C. Montgomery.
4. "Perimetry," Jas. D. Perdue, Mobile. Discussion to be opened by C. A. McWilliams and Fern Champenois.
5. "Nasal Surgery on Allergic Patients," B. S. Guyton, Oxford. Discussion to be opened by R. E. Anderson and W. A. Stevens.
6. "Vincent's Angina," R. A. Clanton, Grenada. Discussion to be opened by G. E. Armstrong and B. S. Guyton.
7. "External Otitis: Its Cause and Treatment," G. E. Adkins, Jackson. Discussion to be opened by N. S. Dickson and H. R. Fairfax.

Section on Surgery.

W. W. Crawford, Chairman, Hattiesburg

Session 2:00 p. m. to 5:00 p. m.

Roof Garden, Markham Hotel

1. Chairman's Address, W. W. Crawford, Hattiesburg.

2. "Acute Pelvic Infection in the Female," A. G. Payne, Greenville. Discussion to be opened by H. R. Shands and J. S. Ullman.

3. "Osteo-Chondro-Sarcoma of Knee," George A. Brown, Water Valley. Discussion to be opened by Frank H. Hagaman and George Street.

4. "The Medical and Surgical Aspects of Goitre," C. F. Dixon, Rochester, Minn.

5. "Diagnosis and Treatment of Bladder Tumors," Paul G. Gamble, Greenville. Discussion to be opened by E. H. Galloway and I. C. Knox.

6. "Caesarean Section," H. M. Mayes, New Albany. Discussion to be opened by J. P. Wall and John W. D. Dicks.

7. "Some Acute Condition within the Abdomen," J. W. Barksdale, Jackson. Discussion to be opened by S. H. Hairston.

8. "Abdominal Drainage," C. C. Hightower, Hattiesburg. Discussion to be opened by H. A. Gamble.

GENERAL MEETING—THIRD DAY

Thursday, May 16, 1929

Session 9:00 a. m. to 12:30 p. m.

Roof Garden, Markham Hotel

Section on Surgery (Continued)

9. "Abdominal Section and Its Consequences," O. N. Arrington, Brookhaven. Discussion to be opened by John Darrington.

10. "Appendicitis," R. H. Foster, Laurel. Discussion to be opened by John C. Cully and T. E. Ross.

11. "Congenital Pyloric Stenosis," A. B. Harvey, Tylertown. Discussion to be opened by S. W. Johnston and E. C. Parker.

12. "Some Diagnostic and Prognostic Blood Indications," Leon S. Lippincott, Vicksburg. Discussion to be opened by A. E. Gordon and W. H. Parsons.

13. "Prostatic Obstruction," W. H. Sutherland, Booneville. Discussion to be opened by S. H. McLean and T. W. Holmes.

WOMAN'S AUXILIARY

Mrs. M. H. Bell, President, Vicksburg.

Mrs. Henry Boswell, Secretary, Sanatorium.

Woman's Club House

Tuesday, May 14—Registration.

Tuesday, May 14, 3:00 p. m.—Executive Board Meeting.

Wednesday, May 15, 10:00 a. m.—Business Session.

Wednesday, May 15, 4:00 p. m.—Auto Ride along the Coast. Garden Party at Gulf Hills.

Thursday, May 16, 10:00 a. m.—Sight-seeing Drive, Golfing at the Country Club.

The South Mississippi Medical Society met in Hattiesburg on March 14th. Their program was as follows:

1. "Pneumonia and Some of Its Complications," Dr. J. W. Stringer.

2. "Intra-abdominal Postoperative Complications," Dr. E. W. A. Ochsner.

3. "Light Therapy as an Adjunct in the Treatment of Carbuncle," Dr. W. P. Gray.

4. "A Paper," Dr. J. H. Musser.

5. "Treatment of Puerperal Eclampsia," Dr. L. B. Hudson.

6. "Ulcer of the Duodenum—Leutic," Dr. E. L. Grubb.

Dr. A. G. Payne of Greenville attended the meeting of the American Association for the Study of Goitre in Dayton, Ohio, on March 25-27. At this meeting Dr. W. H. Parsons of Vicksburg was elected to membership.

Dr. E. W. Holmes of Winona, Mississippi, is specializing on genito-urinary surgery and is associated with his brother, Dr. T. W. Holmes, at the Winona Infirmary, Winona, Mississippi.

Dr. C. E. Burnham, formerly of Bay Springs, has located in Laurel to do ear, eye, nose and throat work.

Dr. B. G. Barentine, having completed a course at the Ear, Eye, Nose and Throat Hospital in New Orleans, has located in Laurel.

Dr. Rufus Johnson, recently an interne at the South Mississippi Charity Hospital, has located in Laurel.

Negotiations for the purchase of the Cranford Hospital in Laurel by the Kings Daughters are pending. If the Kings Daughters buy this hospital, they propose to repair and re-equip the institution and possibly to enlarge it.

The Gamble Clinic, Greenville, Mississippi, announces that Dr. J. C. Pegues, formerly of Atlanta, Georgia, will be associated with their ear, eye, nose and throat section.

Dr. J. M. Dampeer of Crystal Springs who has undergone a serious operation at Mayo Hospital has informed us that he is progressing nicely.

Dr. C. McKee of Hazlehurst was operated on March 28 for gall-bladder trouble. He is reported as doing well.

Dr. L. D. Chapman of Georgetown died recently at the Baptist Hospital, Jackson, following an operation for appendicitis.

The Tri-County Medical Society held its regular meeting at Brookhaven, March 12. Papers were presented as follows:

1. "Ectopic Pregnancy," Dr. G. S. Ramsey.
2. "Influenza and Its Complications," Dr. O. N. Arrington.
3. "Uncinariasis a Factor in Diagnosis," Dr. R. H. Brumfield.

The monthly staff meeting of the Vicksburg Sanitarium was held April 10. Their program was as follows:

1. "Suppurative Cholecystitis," Dr. G. M. Street.
2. "Post-Operative Pneumonia," Dr. A. Street.
3. "Retro-cecal Gangrenous Appendicitis," Dr. J. A. K. Birchett, Jr.
4. "Tuberculous Meningitis," Dr. H. H. Johnston.
5. Demonstration of Radiographic Studies:
 - (1) Fracture of the hip.
 - (2) Fracture of dorsal spine.
 - (3) Metastatic carcinoma of sacrum from carcinoma of vagina.
 - (4) Bone tumor of skull, benign.
 - (5) Subdeltoid bursitis.
 - (6) Duodenal ulcer.
 - (7) Aortic aneurism.
 - (8) Tuberculosis of lung.

The Homochitto Valley Medical Society held its regular quarterly meeting in Natchez on April 11. The following papers were presented:

"The Relationship of a Full Time Health Department to the General Practitioner," Dr. B. D. Blackwelder.

"The Use of in the Diagnosis of Antrum Disease," Dr. L. S. Gaudet.

After general discussion on the subject of the advisability of establishing a state medical journal, the society went on record as being opposed to any change in the present method of publication, at the same time sending its delegates to the state meeting uninstructed.

The North Mississippi Six County Medical Society met in Oxford April 17. In the forenoon two papers were presented on "Caesarean Section," one by Dr. C. M. Speck of New Albany, the other by Dr. H. R. Shands, of Jackson. In the afternoon their program was as follows:

"Bronchoscopy and Esophagoscopy," Dr. Wm. J. Greenfield, Memphis.

"Influenza," Dr. D. R. Moore, Byhalia.

"Operation in Acute Mastoiditis," Dr. Robin Harris, Jackson.

"The Opportunity and Responsibility of the Doctor of Today," Dr. Felix J. Underwood, Jackson.

The Delta Medical Society met in Drew, Mississippi April 10. Their program was as follows:

1. "Benign Hemorrhage of the Uterus," Dr. J. Preston, Greenwood.

2. "Pneumonia," Dr. E. R. McLean, Cleveland.

3. "Value of Sedimentation Test in Infections," Dr. R. C. Thompson, Greenville.

4. "Infant Feeding," Dr. Sarah Ruth Dean, Greenwood.

5. "Complications Following Gall-Bladder Surgery," Dr. H. A. Gamble, Greenville.

6. "Blood Transfusion as a Therapeutic Measure in Children," Dr. Ed. Clay Mitchell, Memphis.

BOOK REVIEWS

Bacteriology, General, Pathological and Intestinal:

By Arthur Isaac Kendall, B. S., Ph.D., Dr. P. H. 3 ed. rev. Philadelphia, Lea & Febiger. 1928. pp. 733.

This third edition of a standard work on bacteriology has been brought very completely up to date and contains most of the new ideas about bacteriology in general. While the book is not detailed enough in some respects for the purposes of specialists in this field, the casual worker or reader will find it broad enough. Professor Kendall is maintaining his usual high standards in this edition. The reviewer would like to disagree with Professor Kendall in his statement regarding the Kahn reaction. While it is a recognized fact that the Kahn reaction is a reliable one and well worth using, it would seem that this test should be used to supplement the Wassermann reaction and not to supplant it, as suggested by Professor Kendall. In this I think that the majority of experienced laboratory workers assuredly agree. As for the simplicity of the Kahn reaction, the reviewer feels that it is not so very simple as pictured and not at all "fool-proof," as many seem to think. In searching through the book, the reviewer could find no mention made of the Leishman-Donovan bodies, the commonly accepted causative agents of granuloma inguinale. Many of the new books in which one would expect to find mention of such things, do not give any information on this subject. In as much as granuloma inguinale has been demonstrated to be a common infectious condition in and about New Orleans by local workers and in various portions of the United States, it would seem that more attention would be given to the subject in any complete bacteriologic or pathologic work.

S. J. LEWIS, M. D.

Surgical Treatment of Malignant Disease: By Sir Holburt J. Waring, M. S., M. B., B. Sc. (Lond.), F. R. C. S. London, Oxford University Press. 1928. pp. 667.

It is with pleasure that I attempt to make a few comments on a book that is so ably written. To undertake such a gigantic task and present the material in such a simple manner is to me an outstanding achievement. The author does not attempt to go into the minute microscopic pathology as in other texts, but holds to the clinical aspect which will help the good, every-day surgeon in his diagnosis. When dealing with malignant tumors it is impossible to classify to suit the opinions of all pathologists, but he has fought shy of this and held fast to basal facts. His system, including the description by anatomic classification, the minuteness of detail and the ex-

tensive bibliography is excellent. The opening chapter of the book is his Bradshaw Lecture, delivered at the Royal College of Surgeons of England, Dec. 14, 1921, dealing superficially with the experimental work of Gye and Barnard, and under eleven headings, with the important factors necessary to consider before expressing a view as to probable success or non-success of surgical operative treatment. The principles outlined in this chapter are more or less held to in the discussion in each chapter with the addition of prognosis, including the opinions of others throughout the world. As a concluding remark, I should recommend that all surgical diagnosticians and operators read this book.

EMILE BLOCH, M. D.

Handbook of Microscopical Technique: Edited by C. E. McClung, Ph.D. New York, Paul B. Hoeber Inc. 1928. pp. xiv+495.

This handbook, the production of twenty-four contributors, aims to meet the needs both of beginners in microscopical technique and experienced workers desiring a compact treatment of various specialized procedures. "It is assumed that the book will be of interest particularly to workers in bacteriology, botany, cytology, embryology, histology and pathology, but the presentation of general methods in Part I makes it useful to any student of microscopical anatomy."

The 35 pages of Part I are devoted to discussion of generalized methods of preparing materials for study. Part II, covering about 450 pages, deals with the specialized techniques employed in: microdissection, microinjection, vital and supravital staining, bacteriology, botany, cytology, embryology, histology and protozoölogy. It concludes with three chapters on fixation, staining and "miscellaneous," which could have been placed to greater advantage in Part I.

The individual chapters and chapter divisions are written by investigators in whose researches the specialized methods have been employed, and in many instances originated. In consequence, one interested in the application of the methods here described will find an authoritative guide in Part II. It is to be regretted, however, that the extent of the work over so broad a field has necessitated a limitation of the scope of some of the chapters. In histology, for example, the special methods are limited to: red blood corpuscles, leukocytes, bone, dental tissues, intercellular elements of connective tissue, muscle and electric organ, neurological technique, neuroglia and microglia. The book is well made, conveniently arranged typographically and contains a good index.

HAROLD CUMMINS, Ph.D.

Diseases of the Eye: By C. W. Rutherford, M. D., F. A. C. S. New York, D. Appleton & Co. 1928. pp. 404.

The author is to be congratulated on this first edition of a volume which fills a needed place in American Ophthalmology. No intermediate text has recently been written in this country between the larger volumes of Ball and de Schweinitz, and the more condensed work of May, which incidentally the present volume may succeed. The subject matter is reasonably complete and very practical, the style simple and readable, the illustrations excellent, and the index comprehensive.

The anatomy and more frequent diseases of the lid are adequately discussed. The surgical treatment is perhaps described at greater length than necessary, because the ophthalmic beginner for whom the book is essentially written usually performs but few Tansley-Hunt or other similar plastic operations, which the author describes in detail, during the first half of his career.

Diseases of the conjunctiva are rather briefly described, and the more frequent forms of conjunctivitis, such as catarrhal and seborrheic, could well have been discussed at greater length.

The rather large group of corneal affections characterized by a variable loss of substance, very slow healing and negative explanatory bacterial findings, usually classified as "herpetiform" are not correlated by the author. The extra ocular causative factors are not described nor are the benefits obtainable by physio therapy.

The author is to be complimented upon the simple and effective manner in which the chapters on visual fields, extra ocular muscles, and reflection are presented. Greater detail in the *modus operandi* of subjective testing, however, would have apparently been of service to the average ophthalmic student whose ability in prescribing efficient and comfortable glasses is unfortunately often limited.

Many of our modern conceptions are incorporated in the chapter on the uveal tract. Dr. Rutherford, like other text-book authors, does not describe in sufficient detail the importance of personal hygiene, in its relation to secondary involvement of the eye and especially uveal tract. Let us not forget that our living habits to a large degree determine our resistance to disease and in an emergency, such as secondary uveitis, often decides the fate of the eye, irrespective of the attacking organism or where it comes from.

Most of us memorize too much and reason too little, which may be one of the reasons our patients do not get well quicker. The objective findings contained in the various tabulated diag-

noses given by Dr. Rutherford and other authors vary so greatly and are so seldom seen as pictured, that I doubt their value.

The chapter on intra-ocular tumors and industrial injuries are well conceived and executed. One is often surprised and disagreeably so at the ophthalmic tragedies that result from ignorance on these subjects. A chapter covering the eye in general diseases and one describing modern equipment such as the slit light and corneal microscope, stereocampimeter, and light therapy, would have obvious advantages.

In conclusion, I feel that the beginner in ophthalmology will make no mistake in purchasing this book which contains a great amount of practical information simply expressed. It deserves recognition not only because of its merit, but also because an efficient American volume of this type should attain more than one edition.

CHAS. A. BAHN, M. D.

Recent Advances in Chemistry in Relation to Medical Practice: By W. McKim Marriott, B. S., M. D. St. Louis, The C. V. Mosby Co. 1928. pp. 138.

This book is a series of lectures given by the author at the San Diego Academy of Medicine. No one is perhaps better qualified to do this than Doctor Marriott, as he is an outstanding example of one who is highly trained in the laboratory side of medicine as well as being a most able pediatricist.

The lectures are primarily intended to make clear such fundamental consideration as the atom, osmotic pressure, colloids, etc. He also feels that a better understanding of these subjects clarifies such phenomenae as acidosis, alkalosis, blood chemistry, foods and metabolisms, and endocrines, which he discusses most ably. Under this discussion he considers symptomatology and treatment of acidosis and alkalosis.

This series of lectures are strongly recommended for anyone wishing to obtain a better understanding of the recent advances in chemistry as applied to modern medicine.

JULIAN GRAUBARTH, M. D.

Diabetic Surgery: By Leland S. McKittrick, M. D., F. A. C. S., and Howard F. Root, M. D. Philadelphia, Lea & Febiger. 1928. pp. 269.

In the preface to this volume the authors state that "insulin has placed a new responsibility upon the surgeon." They call attention to the fact that "surgical complications have replaced coma in importance, so that the surgeon is faced with the care of a group of cases requiring special consideration."

In a foreword Dr. Daniel F. Jones makes a statement: "It is probably true that no group of cases have been so neglected surgically as the diabetic, and when we consider that at least 25 per cent become surgical problems it would seem that they deserve more consideration than they have received."

The preface and this foreword by Dr. Jones give sufficient reason for the publication of this volume.

The quotation given below, taken from the foreword by Dr. Elliott P. Joslin, should be sufficient to interest medical men as well as surgeons in this contribution.

"What a blessing it has been to have two young zealots working over my cases, striving to make the result of each fresh surgical encounter more successful than the last, and now it gives me pleasure to see their experience made available for all."

No word of praise is too extravagant in appreciation of the stupendous amount of detail work which the authors have done in order to present in a concrete useful fashion their knowledge. The average surgeon and practitioner who sees only the occasional case of diabetes must have a handy reference which is dogmatic and authoritative in its expression. This volume meets the demand.

In the first chapter, devoted to the incidence of surgical diseases, attention is called to the fact that the clinical character of diabetes is changing—cases are diagnosed earlier—life is prolonged—and complications may seem to occur later, due to prolonged life.

The authors state that the surgeon had only a "speaking acquaintance formerly, only peremptory surgery was done; now, for the vigorous and optimistic patient the best that surgery, as well as medicine, has to offer is demanded."

The authors emphasize the fact that surgical complications replace coma in importance since insulin has come into use.

This little volume is valuable because it represents personal observations in a well conducted clinic. It emphasizes the need for co-operation and intelligent understanding of the patient's condition.

The surgeon after reading the statistics in this book can no longer consider diabetes a medical disease; of 2179 cases treated by Joslin, 507 were operated upon and 285 others were surgical diseases.

A special chapter is devoted to the diabetic as a surgical risk. Emphasis is laid on the importance of obesity, age, infection, cardiac-vascular

diseases and many other conditions too numerous to mention in a brief review.

The chapter devoted to problems of differential diagnosis and treatment, both pre-operative and post-operative, contain clear, concise and unmistakable delineations of the many conditions to be differentiated.

This chapter should be carefully studied by all likely to be contracted with these cases. For the surgeon not fortunate enough to be associated with expert internists, who are interested in the management of the diabetic, this chapter should be of inestimable value.

The chapter devoted to anesthesia, in which due consideration is given to the effects of various anesthetics on the diabetic patient with conclusions by the author as to the anesthetic of election for the diabetic operation, is interesting and should be carefully read by surgeons, anesthetists, and internists. The authors remind us that the same effects which are observed in the normal individual, occur in the diabetic, exaggerated in proportion only to the degree of the metabolic disturbance.

In the chapter devoted to diabetic gangrene the authors have laid great stress on careful examination and differential diagnosis of those conditions which produce deficient blood supply.

The authors, when considering the prognosis of the diabetic patient who develops gangrene, remind us that these patients are not unlike a group of patients who of the same age develop cancer. "Without treatment either is usually a fatal disease."

The effects of infections are stressed. Statistics are given with reference to mortality following operation. The methods suggested for the handling of the diabetic patient with gangrene or threatened gangrene contain suggestions which might well be followed by everyone.

Chapters are devoted to major and minor amputations, infections, such as carbuncles, and emergency abdominal surgery.

It is not too much to say of this book that it should be in the hand of every surgeon and internist interested in the diabetic patient. It should prove to be a valuable reference work because assimilation of its contents by the reader will enable him to make the vast experience of the authors readily available for his own use.

Time and experience may change our ideas, but this volume should stand out as an expression of the best that is known today on this subject.

ISIDORE COHN, M. D.

Diseases of Children: By Henry Dwight Chapin, A. M., M. D., and Lawrence Thomas Royster, M. D. 6th ed. and rev. New York, Wm. Wood & Co. 1928. pp. 675.

This is the sixth edition of the work first published in 1909 by Chapin and Pisek. It is a complete ready reference work on all subjects dealing with children's diseases. The absence of bibliographies at the end of chapters seems to be the only weakness of the book.

Illustrations are numerous and there are some very good colored plates, especially those showing the various exanthemata. An appendix gives tables of weights, caloric values of foods, etc.

A valuable book for general practitioners and pediatricists.

L. VON MEYSENBUG, M. D.

Child Health and Character: By Elizabeth M. Sloan Chesser, M. D. New York, Oxford University Press. 1927. pp. 204.

The book should be read by all interested in the child and its problems. Its real merit lies in the excellent practical physiological approach to the subject. The author has undoubtedly had a large experience in dealing with child problems and her ideas concerning them are presented in a manner both interesting and instructive. The chapter devoted to "Sickness in the Nursery" is fragmentary enough to puzzle the lay reader and would have been much better left out of an otherwise good book.

I. L. ROBBINS, M. D.

Proctology: By Frank C. Yeomans, A. B., M. D., F. A. C. S. New York, D. Appleton & Company. 1929. pp. 661.

This new text embodies all that is latest in the specialty. Each subject is dealt with in the orderly sequence of etiology, pathology, symptoms, diagnosis, complications, prognosis, and treatment. Recognizing that good results may be obtained by various methods of treatment, the author describes the different methods, giving fair and unprejudiced comments on the relative merits of each, and indicates plainly, but without undue emphasis, the method of his choice. The book is thorough and includes chapters on related subjects such as Coccygodynia. The section on Amebic Dysentery is aptly handled and illustrates the care which Yeomans gave to the preparation of his book.

The subject matter is excellently presented, and the style is lucid. Its colored plates and the numerous illustrations are clear and well selected. The book has a wide field of usefulness and will fulfill the purpose for which it was intended.

MAURICE LESCALE, M. D.

PUBLICATIONS RECEIVED

Charles C. Thomas, Springfield, Illinois and Baltimore, Maryland: *Anatomical Studies on the Motion of the Heart and Blood*, by William Harvey, M. D. *Monographs on General Agricultural and Industrial Microbiology*, Volume 1, Morphologic Variation and the Rate of Growth of Bacteria, by Arthur T. Henrici, M. D. *Laboratory Diagnosis and Experimental Methods in Tuberculosis*, by Henry Stuart Willis. *What is Life?* by Augustus Gaskell.

P. Blakiston's Son & Company, Philadelphia: *Surgery in the Tropics*, by Sir Frank Powell Connor. *Recent Advances in Psychiatry*, by Henry Devine, O. B. E. *Hygiene and Public Health*, Parkes and Kenwood, eighth edition revised by Henry R. Kenwood, C. M. G., M. B., and Harold Kerr, O. B. E.

C. V. Mosby Company, St. Louis: *Blood and Urine Chemistry*, by R. B. H. Gradwohl, M. D., and Ida E. Gradwohl, A. B. *Injection Treatment of Hemorrhoids*, by Marion C. Pruitt, M. D., L. R. C. P., S. (Ed.), F. R. C. S., (Ed.) F. A. C. S. *The Climateric*, by Gregario Maranon. *The Normal and Pathological Physiology of Bone*, by R. Leriche, A. Policard, Sherwood Moore, M. D., and J. Albert Key, M. D.

D. Appleton and Company, New York and London: *The Facts of Modern Medicine*, by Francis W. Palfrey, M. D.

Paul B. Hoeber, Inc., New York: *Old Age*, by Aldred Scott Warthin, Ph. D., M. D., LL. D. *Annals of Roentgenology*, Vol. VIII, edited by James T. Case, M. D. *The Vertebrae*, by Arial W. George, M. D., and Ralph D. Leonard, M. D.

William Wood and Company, New York: *Manson's Tropical Diseases*, edited by Philip H. Manson-Bahr.

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U. S. Government Printing Office, Washington: *Birth, Stillbirth, and Infant Mortality Statistics for the Birth Registration Area of the United States, 1926, Part 1.*

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SOME PROBLEMS IN MEDICAL ECONOMICS.*

PRESIDENTIAL ADDRESS.

W. H. FRIZELL, M. D.,
BROOKHAVEN, MISS.

I am before you tonight, not because of any outstanding merit or accomplishment of valor or deeds worthy of notice, but by the friendship of my fellow members who have placed this, the highest honor within their gift, upon me, a representative of the ranks of general practioners of medicine, for deeds and service attempted to uphold the high standards and traditions of his profession, but who feels that he has fallen far short of that glorious attainment. I wish to make public acknowledgment of my appreciation of this honor and to say that in my feeble way I have endeavored to return the commission unspotted to the association as have my worthy predecessors.

It is my purpose now to bring briefly to your attention a problem that is of more importance to us than is industrial or agricultural relief—That problem is medical economics.

Man in his social relations meets many problems that stand out preeminently to engage his attention in economics, politics and science.

By comparison there are some of these problems that seem more to engage his

attention—indeed there must be one that occupies the high point.

From the viewpoint of science medicine and surgery are today better equipped than at any former period in the world's history to meet the issues of society, but we can not say so much for its economics.

We pass politics with mere mention to discuss only the status of our medical economics.

In medical economics this one feature or problem is the hospitalization, medical and surgical care of the sick—the conservation of human resources, if you please.

Now, man's society may be classified into three divisions, namely; the poor, the middle classes and the wealthy. Some one has very wisely said that "hospitals are only for the *very* poor and the big rich". This aphorism was most aptly put. We medical men who are intently occupied with the care of the sick of all classes, of course, see this economic problem more vividly than those whose attention is directed along other channels, and whose interests are not along lines of the healing art.

Some methods must be worked out, some measures must be taken whereby the cost of promoting and conserving health can be lowered to the point where the man of the great middle class can furnish at least the necessities of life to his family—including modest cost of maintaining health.

*Read before the Mississippi State Medical Association, Gulfport, Mississippi, May 14, 1929.

This problem has for many years begun to engage the attention of those employing large numbers of men, those who must of necessity conserve man power and efficiency, thus directly affecting their earning capacity and their employees income. Indeed some concerns thus engaged have instituted physical examinations before employment, annual and semi-annual examinations thereafter, community nurses, etc. These and all big companies who employ large forces of men or women will sooner or later employ these measures of prophylaxis, thereby benefitting themselves financially and their employees physically, morally and financially. However such measures only touch those so employed and their families. They do not include the multiplied thousands of agriculturists, small business men, wage earners, and the millions who work on their own account.

This middle class which constitutes the largest division in the body politic has no such protection of their health except that furnished by the Public Health Department of National, State, or District government. This latter has been a great boon to this special class of citizenry. But since the support of such measures is drawn largely from the people by taxation, this very class that needs help so much, can ill afford the taxation. Their financial condition precludes their receiving the alleviating and preventive aids so necessary.

It is this large class of people who are the backbone of our moral, spiritual, social and political society and who present the most complicated and complex problems, especially in our southland, that we should direct our every energy to devise some way whereby their medical care and hospitalization could be effected within their financial reach.

This to my mind is the biggest, most engaging problem that our American people have before them in their political economy.

One can readily prescribe the remedy, that is quite easy, but it is another thing to fill this prescription.

We are of the opinion that there is only one cure for this prevailing condition, and is the well arranged, well operated Community Hospital, whose doors should be so wide as to admit any class who suffer or require reclamation, from acquired or inherited diseases or impediments.

There will always be the poor, they must be cared for, then the few big rich can command care at any price, but it is this almost countless middle class that causes us the most concern. With the present high cost of bringing medical and surgical attention and hospital care to them, it is well nigh prohibitive.

Let me pause here long enough to say that while physician's and surgeon's fees may seem high, yet you do not find any one of them growing opulent from his profession, indeed if you should find such a monstrosity as a rich doctor, you will find that he acquired his wealth with his wife at the altar, or else he gained it by speculation in other fields than that of his profession. You find no hospitals that more than make their expenses, then how is this Utopian idea to be realized?

This is the engaging question, after we have become thoroughly aroused to the conditions in our economy. How shall they be met? Through what media shall the required results be effected?

Science and economy must each play her part in the solution of this problem. Medical science, as above stated, is very well equipped for her part, but must be better prepared and conserved.

It was the renowned Dr. Oliver Wendell Holmes who said: "Science is a first class piece of furniture for a man's upper chamber, if he has common sense on the ground floor; but if a man has not got plenty of good common sense, the more science he has the worse for his patient."

So science alone can not solve the question, just here Medical Economics must step in to bridge the chasm. She can most effectually work when properly equipped. This then demands concentration of material, conservation of forces and elimination of waste. It is through the Community Hospital only that these can be effectually accomplished. She could concentrate her material by bringing the sick to this institution where all could be cared for more scientifically and cheaply than in many private homes.

She could conserve man force by this concentration further reducing cost. She could eliminate appalling waste by this concentration and conservation. Indeed this type of hospital, this method of hospitalization would revolutionize our medical economics and go far toward realizing our dream.

In this, as in all big governmental problems, funds must be obtained by two chief methods, namely; voluntary contributions and taxes. The former can come only through philanthropies of the living and bequests of wealthy decedents. These have already been bestowed in a measure by a few great humanitarian citizens in establishing foundations to be used under the direction of constituted governmental medical authorities. These have done much toward stamping out contagious and infectious diseases that affect largely the poor and middle classes.

Taxes constitute the other element in establishing the remedy for this problem and can be levied and raised only by the government, National, State or Municipal. Now, these funds so necessary for carrying out such a big undertaking must be guarded jealously, expended carefully and to the very best advantage.

To do this brings us to the point where we see another big necessity—that of a National Public Health Department in our government. It is surpassing strange that we Americans, we who boast so of our

civilization, liberties, wealth and social standing, should be so slow to recognize and fully appreciate this big problem, these great economic wastes, and to hasten their correction.

Surely some modern Moses will arise to lead us out of this Wilderness. Our very moral, social, spiritual and financial betterment demand the conservation of health in these three classes, especially in the first and second great classes—those that form the greater part of our social and economic fabric.

MEDICAL ETHICS*

F. M. THORNHILL, M. D.,

ARCADIA, LA.

The definition of medical ethics as given by our best lexicographers is that it is the duties the physician owes to himself, to his profession and to his fellowmen. In most countries either a written or an unwritten code for the government of physicians in their intercourse with one another has existed from the days of Hippocrates down to the present time. This code consists of a collection of rules based on the highest principles of equity, of honor and of justice, embodying the letter and the spirit of the golden rule. Many of these principles were contained in the Hippocratic oath and with but few modifications have been the guide and rule of action of the medical profession from that day until this. Had these principles always been the rule of conduct and practice on the part of mankind in general, Burns probably would never have felt the incentive to write "Man's inhumanity to man makes countless thousands mourn."

Dr. Percival, an English physician, in a small book published in 1807, formulated a code of ethics which it is said with few exceptions made necessary by the advance of medical science and the differences in social conditions is the identical one adopted by the American Medical Association at its or-

*Read before the Bienville Parish Medical Society twenty-five or thirty years ago.

ganization in 1847, and which has been the rule and guide of the medical profession of the United States since that time. In some respects my subject today resembles a certain preacher's text I once heard of which he said was a kind of triangular, three-cornered one, having three main points, the world, the flesh and the devil. He said he proposed touching lightly on the world, to wrestle awhile with the flesh and then he would go straight to the devil, where he would probably dwell for a very long time. Taking up the points contained in the definition of my subject in their regular order I shall first notice the duties of the physician to himself, then to his profession, and lastly to his fellowmen, and if I should not dwell on either point for as long a time as the reverend brother declared his intention of spending on the third division of his subject, I hope I shall at least be able to say something on each that will be of some help to our Society.

As the first and most important duty the physician owes to himself, I would place thorough equipment and proper preparation for the practice of his profession. These involve certain moral, intellectual and scientific qualifications. The physician should be a person of the highest order of moral integrity, imbued with a high sense of honor and a correct conception of justice and of right between man and man. The base, the low and the dishonest and such as seek success by "Ways that are dark and tricks that are vain," should have no place in the medical profession. The health, the lives, the honor, the happiness and all that is holy and sacred to the individual and the family are committed into the care and keeping of the physician. A trust he should seek to guard and to protect with the most jealous care and fidelity. Of course, we have no control primarily, over our mental constitution and natural endowments, for brains and superior natural ability are said to be special gifts from heaven. But individual members of the profession can and should discourage the incapable and the

physically and mentally weak from entering the profession. I verily believe that a strong mind in a strong body is more essential to true success in the profession of medicine than any profession or calling in the world. The lawyers have a good deal to say about what they call fine legal minds, I suppose they mean persons of good minds, having correct conceptions of the fundamental principles of the law and a peculiar aptness for correctly understanding and interpreting the law. So I believe that if there are persons of so-called legal minds, there are likewise medical minds. The profession of medicine has to do with the science of life and with the hidden and occult physiological functions of the different organs of the body in health and disease and certainly requires as high an order of intellect correctly to understand them as the law or any other profession. The constitution of the physician's mind should be one of abundant common sense coupled with the ability to think and reason correctly on all subject, especially from cause to effect.

One of the chief duties the physician owes to himself is to seek to improve whatever talent he may have, by every legitimate means at his command, in order that he may be the better prepared to discharge alike the obligation he owes to himself, to his profession and to his fellowmen, for we shall find as we proceed with the discussion of this subject, that these obligations are inseparately connected and interdependent one upon the other. An honest endeavor and an earnest desire on the part of the physician to get the best there is in the science of medicine for himself is a laudable ambition and one worthy of emulation by every member of the profession, while at the same time it is the most efficient and satisfactory manner of discharging the obligations he owes to himself, to his profession and to those who employ him. The goal of professional success is best reached by conscientious, sober, studious habits of life, striving to steer clear

of the vices that so often creep in and contaminate the heart, and dwarf the intellect and which prove the wreck and ruin of many a promising career.

There are many ways by which the physician may improve his professional opportunities. To the young man just entering on the practice of his profession the matter of a location is an important one as it may be the turning point in his life for success or failure. The young physician should seek the location most congenial to his taste, commensurate with his professional attainments and his financial ability to sustain himself, until he has established himself in practice. I believe many young physicians make mistakes in seeking isolated locations in order to avoid competition. An honorable rivalry and contact with educated and progressive physicians will do more to strengthen and develop our professional gifts than any course we can adopt. But we are all creatures of circumstances and should endeavor to adapt ourselves to them. Julius Caesar is quoted as having said he would rather be the first man in a village than the second one in a great city. We should not be satisfied with a mere superficial knowledge of our profession, but should strive for the very highest plane of learning and skill. The public will soon measure our true professional merit and sooner or later we will stand or fall before the infallible tribunal of public opinion. Lincoln's axiom, "That you can fool all the people a part of the time, part of the people all the time, but that you can not fool all the people all the time," is as true in medicine as in any of the other walks of life. Honesty and industrious application to the study of the science and practice of his profession and the cultivation of friendly and honorable relations with his professional colleagues will do a great deal to broaden the field of professional knowledge of the physician and to establish his reputation on an honorable and enduring foundation. Next to the educational and scientific qualifications as a

part of the duties the physician owes to himself I would place an acquaintance with and a knowledge of the code of medical ethics. Since professional morals is an important part of medical education it would be a good rule, as has been suggested by some if the medical colleges in the United States were required to furnish their graduates with a copy of the Ethics of the American Medical Association with their diplomas and to teach them rigidly to observe it as their rule of conduct in their professional lives.

In this day and time of scientific advancement and progress in medical organizations every graduate in regular medicine owes it to himself as well as to his profession to affiliate with his parish and state medical societies and thus assist in pushing forward the popular demand for a higher standard of medical education and a more efficient organization. There is a constantly growing public sentiment in favor of higher medical education and for proper legislation to secure it and the physician who fails to discern the signs of the times and to fall in line with the procession is destined soon to become a back number in his profession. The public is becoming aroused as never before to the necessity of legislation to protect the people against the impositions of quacks and charlatans and ignorant and incompetent practitioners in general, and we may confidently look forward to important state and national medical legislation at no very great distant day. At the next session of the Legislature of our own state there will probably be certain legislation proposed vitally affecting the interest of the profession, and which every honorable physician in the state should feel ethically bound to support.

Time and space will not permit me to further enlarge on the duties of the physician to himself and I shall now proceed to notice briefly some of the duties he owes to his profession. This I fear will be the most difficult part of my subject to deal with, as professional competition and

rivalry is the source from which spring most of the disagreements, dislikes and bitternesses that disrupt friendly and honorable relations among physicians and prevent fair and just treatment toward one another. The physician should endeavor to identify himself in every honorable relation with his profession and to cultivate the friendship and good will of his professional neighbors and competitors. Above all he should strive to be honest and just in his professional intercourse with his fellow physicians and to accord to them that meed of praise on all occasions, to which their merits justly entitle them. We should be actuated toward this course of conduct from a sense of justice and for the sake of right itself. There is a double amount of truth in the old adage that "right is might" in its application to the practice of medicine and the physician who has the approval of his own conscience and the consciousness of having accorded to his competitor in the struggle for professional success and reputation, fair and just treatment, wields a most powerful weapon against his less charitable and generous brother. Do not allow envy and jealousy to cause you to disparage the professional merit or traduce the good name of your honorable and more successful competitor. You have all heard what a dangerous and unruly member the tongue is, and by some it has been called the rudder of our ships and therefore should be guided with the utmost care and prudence in order to avoid unjust and damaging collisions with the barks of others while sailing the high seas of professional life. I imagine it would be an easy matter to be generous and just and even magnanimous in the day of success, of prosperity and of professional triumph, but the physician who in the day of defeat and failure can maintain his honor and integrity and accord to his more fortunate and successful colleague fair, just and impartial treatment is the real hero and the one who should challenge our admiration and most sincere respect. It is said of Robert E. Lee whose memory every

Southern heart loves and reveres, that in all his illustrious career, he never appeared so grand and great as in the day of his surrender at Appomatox.

The association of physicians with one another in medical societies and attention to the cultivation of social exchange have a softening and beneficent effect on the asperities of professional life. There they meet face to face on a common level where they can talk over their successes and failures and learn to imitate one another's virtues and to avoid each other's faults. There attachments are formed, there acquaintances ripen into lifelong friendships that are both pleasant and profitable, and there a fellow feeling is begotten which makes us wondrous kind. The medical society stands in the same relation to the country physician that the lectures, the alumni association, the polyclinic and the post graduate school, do to the city profession. Before leaving this part of my subject I want to consider briefly the conduct that should govern physicians in the matter of consultations. This is a matter I have reason to believe in which professional etiquette, dignity and decorum are frequently violated either consciously or unconsciously. Consultations are usually had at the suggestion of the patient or the family and friends of the attending physician and in either event presumably chiefly in the interest of the patient. This is a matter in which both the patient and family and the attending physician have certain rights which it is here unnecessary to discuss as all honorable and educated physicians are supposed to be familiar with them. The welfare of the patient is of the first consideration and neither the attending nor the consulting physician should allow any selfish or sinister motive to come between them and their patient's best possible welfare. It is customary and fair for the consulting physician to be allowed to name the hour of meeting. When the hour has been agreed on, he should endeavor to be on hand promptly at that time, so as not

to keep the attending physician waiting or subject him to unnecessary inconvenience and embarrassment. I will omit mention of the preliminary ceremonies that should govern the meeting as most physicians are presumed to be acquainted with them, further than to say that the consulting physician should not enter the room of the patient in the absence of the attendant, or express an opinion on the management of the case that may in any way come to his knowledge. Ostentation and officiousness should be strenuously avoided on the part of the consultant and he should be actuated by an honest and sincere desire to help both the patient and the attending physician and his conduct should be honorable and circumspect in every particular. When the consulting physician has examined the patient and noted carefully his conditions and observed all the symptoms and elicited all the information possible in order to enable him to arrive at a correct opinion, he should announce the same to the attending physician when they should retire to some place of privacy where they can discuss the case. Whatever may be said or whatever difference of opinion may obtain unless absolutely irreconcilable should remain a sealed book between themselves. When the line of treatment has been agreed on of course it is understood that the attending physician should give the necessary instructions to the nurse and that the part of the consultant should not be known in it. It is just and right however at the proper time and in the proper way for the consultant to express his approval of the attendant's management of the case unless unfortunately there should be an irreconcilable disagreement. And in this connection, I want to say that among right minded, honorable, progressive and up-to-date physicians, there should be no very great difference of opinion, especially when the matter of diagnosis has been settled. Consultations honorably and intelligently conducted are calculated to be of inestimable benefit to the patient as well as to the at-

tending physician, and may be the beginning of a lifelong, pleasant, agreeable and profitable friendship between them. On the other hand if the physicians should not be influenced by correct conception of fair, just and honorable professional conduct, they may prove to be the source of a lifetime of bitterness and strife between them, which will be bad for both the head and the heart. Talking with a medical friend of merit and good attainments in New Orleans, a few months ago, the conversation turned on the subject of consultations in which he said that they had been very disappointing and unsatisfactory to him in as much as he had been the victim of very unjust and gross unprofessional conduct on several occasions. He related an instance in which a physician from a distant town of larger pretensions had been summoned to meet him in consultation at a small town a few miles distant from his own and after having seen and examined the patient together and agreeing as to the diagnosis and treatment, they separated. The consulting physician (or rather I believe we should say in this instance, the insulting one) was compelled to remain at the patient's town for the most of the day before being able to catch a train home, and the attending physician having other patients to see, left with the promise to return late that afternoon. On his return he found the family in a very unhappy and distressed state of mind, because in his absence the consultant had told them that he had discovered that the diagnosis and treatment was all wrong and that the patient's life was in great peril. He had had the treatment discontinued and promised them to send appropriate treatment by the next morning's train and had left no word or note of explanation to him (the attending physician). In my own estimation it is impossible to conceive of a baser, lower, more contemptible and despicable conduct than this, and I do hope and trust that no member of the Bienville Parish Medical Society will ever display so base and low a disposition.

I come now to the consideration of the duties of the physician to his fellowmen, the third and last division of my subject. These carry with them, certain private and public responsibilities. Physicians to a certain extent at least are considered the guardian and protectors of the private and public health. As the family physician they are expected to advise their friends and patrons how to preserve their health when well and to be able to cure them when sick. Physicians are consulted in matters of private and public health and are expected to give their advice and services gratuitously frequently to an extent for which their friends of the legal and other more mercenary and less charitable professions would receive liberal fees. When withering and blighting epidemics overshadow the country bringing death, sorrow and desolation to hundreds of homes, it is to the medical profession that the people instinctively turn for succor and deliverance.

How much physicians have to do with the public health and the safety of the lives of the people in times like these, has been forcibly demonstrated during the year that has just closed. In the face of opposition and amid the jeers and satire and ridicule of a skeptical and prejudiced laity, and in not a few instances members of our own profession, the medical profession of our own state waged a relentless war for the extermination of the mosquito and established the role of that pestiferous insect in the propagation and spread of yellow fever on an acknowledged scientific basis, and are preparing for still greater sacrifices of time and labor in order to prevent a recurrence of the disease in the future. The profession in its organized capacity of the State Medical Society has called a special meeting of that body for February 6, 7 and 8, in New Orleans, for the purpose of formulating a sanitary code as well as to discuss the mosquito doctrine of yellow fever, and to inaugurate a campaign of education and prevention along the lines of that theory. But it is in his capacity as a

private practitioner that I wish more particularly to discuss the duties of the physician to his fellowmen. The most binding duty and the one from which there is no escape is faithfulness and fidelity to his patient's welfare while under his care. To cure and prevent disease and to relieve human suffering is the first business of the physician and having once assumed the care of a case he is bound by every feeling of humanity and sense of professional obligation to do everything in his power for the relief of his patient and his speedy restoration to health. These duties often involve great physical discomfort, hardships and outlay of time and means. The profession of medicine is pre-eminently a humanitarian one and the physician as a type of the good Samaritan should be ever ready to do good as he has the opportunity. The rich and the poor alike have a claim on our kind offices and do good unto all is an injunction that finds a responsive chord in every true physician's heart. The physician's only reward will often be the consciousness of duty faithfully and consciously performed. It is not to be understood from what I have said that the physician is required to allow himself be imposed on by the unworthy and the dishonest, but on the other hand, the laborer should be considered worthy of his hire and he that practices medicine should live by his profession. For good and sufficient reasons every physician has the right to accept or decline the care of any private or public charge offered him, nor is it always necessary that he should make known his reasons for declining. The employment of more practical business methods on the part of physicians would be the means of more amicable relations with their patrons and would rebound to a higher sense of appreciation for their services. Gratitude is short lived and the best time to collect a bill is before it has lived out its allotted time of three score days and ten, if by reason of strength it should be able to reach that limit. The physician who is not prepared to brook frequent exhibitions of in-

gratitude and lack of appreciation for honest and sincere endeavor will as often be doomed to humiliating and disheartening experiences. Often when your bill is presented it will be disputed and declared to be exorbitant and yourself to be a first class fake. But many good people and those who sincerely appreciate your services, for different reasons will expect you to discount their bills. Some fairly intelligent people regard it as an ill omen indeed to be sick on a birthday, Sunday, Christmas day or other holidays or to have to pay for medical services rendered on any of those days, thus presenting a phase of ignorance and superstition with which the profession of medicine has had to contend since its earliest history and as an example of his fact and as a fitting conclusion to my paper, I want to reproduce in part what I consider a very pretty little Christmas story which I read in one of my medical journals on last Christmas day.

The writer of the story was called some years ago to see the wife of a Russian recently arrived in this country. She was very ill and he found it necessary to visit her every day for a month, commencing December 15th. She recovered and in due time he sent his bill. The husband in somewhat overdue time, so the writer stated, called at his office to pay it, when he entered the following plea: "Mr. Doctor, dat bill you sendt mein vife, he's all dright, but vone dem visits you make mein vife you makes him on a Grisdmas day, and I vandt you make me a bresent dat visit you makes mein vife ond Grisdmas day." The writer said that the request was so original and so different in tone and spirit from the usual peremptory demand for a large discount that he knocked off the visit made on "Grisdmas" day and made him a "bresent" of it, and that he had received many times the value of it telling the story to his friends.

MEDICAL SOCIOLOGY.*

O. N. ARRINGTON, M. D.,

BROOKHAVEN, MISS.

The purposes of a society are: 1. Maintenance of the life of the society, 2. Maintenance of the lives of its members.

The principal functions are: A defense of the whole, and the preservation of the whole from destructive enemies. It is therefore necessary to have restraints for the individuals and from these restraints or obligations imposed upon the whole there arises individual benefits. "It is obvious that the medical man who removes pain, sets broken bones, cures diseases and wards off prematruue death, increases the amount of life."—Spencer. Likewise, we might draw similar conclusions from the poet, the historian, the lawyer, the minister, the teacher, and the architect, citizens who all add their mite to the benefit of the whole, yet in none of these can we find any that is so interesting as that of the development of medical social science. And we find so little written on this subject.

Those of us who are today living, prospering and receiving the benefits derived from the slow but progressive evolution of society cannot have greater reflective honor than to recognize an appreciation of this slow but sacrificial progress made by those who have preceded us. While we recognize the fact that the father of medicine planted the seed which has produced medical anthroponomics from four hundred years before Christ to the present day; yet we cannot read the history of medicine without being impressed with the fact that there has been more developed within the past one hundred and fifty years than there was from all the time following the life of Hippocrates to within one hundred and fifty years ago.

The ancient Egyptians believed in various methods of cure; some inclined to sor-

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

cery, formulae, etc. Others believed in drugs derived from plants and minerals, but the best doctors of that time carefully avoided binding themselves to any exclusive method, suiting their remedies to the peculiarities of their respective patients. This selective method has inclined down to this present day, until what we call regular physicians or surgeons who accept and exercise all truth to the end of relief for the suffering of humanity. The regular practitioner of today might be considered an officer of the state, being duly licensed and obligated by the license given him at graduation. His well-developed knowledge of the science of medicine enables him to operate under well-recognized and proven methods to the great advantage of himself and of suffering humanity, to do the greatest good to the greatest number. We should not lose sight of one main issue, that is the attainment of truth and the publication of this to the end of standardizing these truths in one school, making it impossible for quacks, sorcerers and the dealers of the black hand to ply their chicanery to the grasping hope of the sick and the diseased of body and mind.

Let me, therefore, hasten to draw this conclusion for our great and honored profession. Let us apply well the recognized and time-honored remedies that have proven themselves beyond the vale of experimentation. Let us be slow to experiment and grasp too quickly at the new unproven theories of the novelist of today which glitter and sparkle but for a time and then have to go into the discard. This causes our science to appear to be an experimentation altogether, and before we have established any one fact we find ourselves reversing our former practices, thereby proving to the world that we are unfit to establish new truth.

Quoting, in part, from Harlow Brooks, J. M. A., July 2, 1927, "Misunderstandings have arisen it is true, honest misunderstandings between the profession and some worthy public health activities. Was

there ever progress without argument? There is little or none in those activities controlled by the United States Public Health Service, or in those of the state or city health departments when they have been controlled and directed by trained medical men." Such misunderstandings, he says, "have almost without exception, originated when we have been asked to abrogate, to forget, our scientific training, or when our code of ethics has been ruthlessly ignored. . . . What does the physician in family practice resent in the activities of public health? He resents the nurse doing the work of physicians, making diagnoses and dictating treatments which the family physician shall carry out. He resents the underpaid, time-serving employee of the department who, from the wealth of his experience, minimizes to school children the work and ridicules the respect of the family doctor. He resents, too, wholesale vaccinations and other evidences of legal but bad practices. He resents the snap diagnosis of an employee of a department in a case to which he has given serious and experienced study." Suffice it to say that free examination of the poor, that the free public clinic, that the free examination of school children, a good so broad, so benevolent, so charitable, so great when properly carried out by men in our own profession handled and supported by them, cannot but finally work the greatest good, not only to the public in general, but to our honored profession.

"Numberless are the confidences locked up in the bosoms of physicians; and, in behalf of our social order, Heaven is to be thanked they are locked up." Medical men are always to be open and frank in their communications to all social orders of truth but never to be a news box or a source for tattlers to comment upon their sayings. We should keep constantly abreast with progress and mark well our step of vaunted remedies, prophylaxes and cures in keeping with truth. For, as one writer has pointed out, "Should Henry Ward

Beecher come back to his pulpit, he would find his preachment just as understandable and effective as in his day. Should Chief Justice Marshall return to his bench, he would find the law unchanged and his decisions acceptable. But should the most competent physician or surgeon of fifty years ago return he would be at a loss, for the physician would be obliged to study medicine over again, and the surgeon would not be able to do the ordinary work required in the operating room." Just here I do not wish to be infidelic or to spread any suspicion or doubt upon the most wonderful discoveries of science, and I wish to state furthermore that antitoxin has brought to the human race one of the greatest resources of relief to the suffering, but I can recall, in my own short period of practice, when 500 units was used as a prophylactic and 1000 units was used as a curative dose, whereas, now, it is generally conceded by the best authorities that the initial curative dose should not be less than 10,000 units. I can recall further, twenty years ago, calomel was considered an indispensable drug in the care and treatment of typhoid fever, whereas, now, the physician giving a dose of calomel in the course of typhoid fever would be open to severe criticism by our profession and not guiltless of crime in the courts of justice.

I wish to note, in passing, that the practice of medicine has developed, as I think, under the two great divisions: First, the art of medicine was practiced by the ancients and the great medical lights noted in ancient sociology gave themselves more or less to the great art of healing, and one gets the impression that they held their sociological relationship to each other in profounder respect, and in this initial period was developed the greatest medical sociological creed from which we have never, to this day, departed; second, the science of medicine which has come to us principally within the last one hundred and fifty years through a thorough understand-

ing of disease and its causative factor. The principals of these sciences are bacteriology and pathology. Pasteur, Lister and Koch are the initial promoters of the science of from cause to effect. Medical development has been more or less involved in the ecclesiastical influence from the beginning of man. The priesthood originally administering not only to the spiritual needs but to the physical needs also. This influence had a most serious objection to post-mortems and human dissections. Human dissections were not permitted until 1306 and then on criminal bodies from the gallows. It can be seen, therefore, that there was great and sufficient reason for the healing art to be predominant in the minds of medical men of those days. Now that dissections are authorized by legal enactment anatomy of the most delicate structure may be studied. Pathology, bacteriology and serology are made possible by the compound microscope. These sciences have not yet reached their zenith and such new fields as the laboratory or the roentgen ray have perfected the science of medicine to such a degree that the student knows while the artist or clinician does. The advance of these sciences has so elaborated medicine and so widened our knowledge of the healing of the human body that to comprehend the whole field seems to be now almost an impossibility and the end is not yet. The specialists have come into their own and the family physician has been almost minimized to a degree that he can have no place in human economy in the not far distance. We should not wail or bemoan our plight for the evolution of human society has demanded these changes and it should be a congratulatory privilege for us to have met them in so proud a fashion of modern medicine. This rapid development of recent years, however, has almost divorced medicine from church influence, and the science may advance unhampered except from a few anti-vivisectionists who write long and hard in the scientific magazines against vivisection and yet will eat the flesh of in-

nocent lambs slain for their luncheon. But the hospital has replaced for sectarian and religious workers the open field for benevolent work, and this institution has become one of pride to every heart that beats with the impulse of love for human science. This institution has become the medical man's workshop and the medium through which much scientific knowledge is obtained and much art of healing performed. It would now be as difficult to keep people from the hospital as it was ten years ago to get them to it. We could never have developed this institution to its present-day efficiency without the trained nurse.

CRIMINAL ABORTIONS.

There is no segment of the whole social cycle, medical or moral, in general, that is filled with so much grave responsibility as that of the medical man in this phase of his responsibility. The young doctor with his great ambition to win new friendship and the old medical man with his ambitions to favor a long and faithful client has this temptation presented to his door far more often than is generally thought. In reviewing the laws of our great commonwealth of Mississippi we note that the physician's license may be revoked for three outstanding guilts: First, performing a criminal abortion; second, for violating the Federal anti-narcotic laws; third, for habitual drug addiction. So, reviewing the functions, a defense of the whole being a principal fiber, it is necessary for the human race to strengthen itself by the reproduction of its kind. In order to produce the best results in the reproduction of the human strain it is necessary for society to forestall this evil, and we should not put on the soft pedal when it comes to the condemnation of this evil. I do not know of my own knowledge whether any medical man in the state of Mississippi would be so low as to stoop to this form of crime, but it is currently rumored that we have some medical men who are lax in this practice if not actually indulged in the production of criminal abortions. I think it would be

well for us to review the whole situation and to loudly decry this practice, and if there be those found among our ranks who are guilty there should be every effort on the part of the medical profession to bring these men to the bar of justice, and if proven guilty, prosecuted to full extent of the law and forever barred from the medical profession as a stench to human society.

LIFE AND SICK ACCIDENT EXAMINATIONS AND REPORTS.

Practically all the heads of business and families of today carry life insurance based upon insurability and life expectancy, as measured by the medical profession. Sick and accident insurance has of recent years been very sporadic and most phenomenal in its growth. An imperfect science like the science of medicine has been depended upon to set the working basis of health and disability from accident and sickness at the doors of the medical man. Just where health ends and sickness begins theoretically is very easy, but when we analyze it as being based upon two great sources of information, first, subjective, and, second, objective, we sometimes find ourselves very seriously blocked in our interpretation of the rights of a client, and we find ourselves called upon to serve as judge and jury in a sick and accident claim. This position is one not very attractive to the highly moral medical man, seeing that the ideas of his client may be in serious conflict with his own judgment in a claim on such insurance. Theoretically, sick and accident insurance is a wonderful thing for the protection of human society, and yet I fear that we are not now to the point in its development where justice and equity can be measured by us for this form of protection. The medical man who may be so inclined, may prepare a claim so that it will work an injustice on the company primarily, but secondarily by upsetting the whole system, and not only making an inequity in an honest business but reacts to the detriment of the entire scheme. So, in this peculiar phase of our social develop-

ment, we need men who will follow the lines of the highest ethical standards.

In reviewing our study it is interesting to note that the art of medicine and the science of medicine arose in the beginning of man from the physical needs of his personal and physical suffering. It is a vital characteristic of the human race that wherever a need arises this need is sooner or later fulfilled in some sort of fashion; man being the highest specimen of the architecture of God. The art of medicine finally being released from ecclesiastical prejudices and the hospital an admirable adjunct of medicine being substituted for their original claim, and certain human bodies being turned over after death for real study and investigation, has released the profession to the acquirement of real truth and knowledge. This development is left largely, and I should say, almost totally, to the personnel of medical men and medical minds. This development has gone on principally, and of right should have been, through two great and outstanding influences, the influence of the medical school and the influence of the medical society. The modern medical school, backed and supported by the best men of the profession of today, has made a wonderful progress and is deserving of our commendation, support and endorsement. In common parlance the medical school takes the applicant for the work commended to them for their moral character and intellectual attainments in the form of educational acquirements and through a standard, studious process of graded teaching and training, undertakes to mould the medical fiber of our profession for tomorrow. It is not difficult, if I may be allowed to judge, to weed out the intellectual weaklings or those not competent to take the scientific training and perfection; but I have some reservations in mind if the schools are doing enough in looking into the character of the students of medicine as they should.

Now comes last, but not least, the medical man and his society. The organization of medical men into medical societies comes in for the lion's share of praise for all of the attainments of modern medicine and I think the fact that medical societies have developed principally during and since the eighteenth century, that the outstanding discoveries in medicine have been since that date, is fair proof of this assertion. Also reviewing it is a fact that the example of New York was followed in the legalizing of medical societies and by 1850 nearly every state in the Union had laws enacted providing for medical societies.

The Woman's Auxillary, a development of recent years, has an enviable scope of social work in the profession and is living up to that expectancy as the work of noble women always does.

During the student days of the medical man he forms his ties of friendship as binding and as lasting as the endless circle of the wedding ring, and it is easy for him to cultivate a love for his calling, teachers and his college chums. On entering the career of a practitioner he finds his old companions scattered to the four winds of the earth and faces the competition of the world for a survival of the fittest. A few of the weaker minds and weaker characters change their schemes with methods of prey upon the sick and the uncanny. A few, and I would that there were more, load their hearts with a passion of love for their fellows with a determination to follow the truth as found in the true science of medicine, recognizing the opinions and finding of their fellows, associating themselves with their medical societies and taking no opportunity to back-bite and pulling hard to a common good and to a common end. I know no better criterion to work upon than to insist that those who enter the study of medicine be required to stand as exacting test morally as of mental attainments and for us as older practitioners to purge our ranks

of those who are unworthy on account of violations of the laws of the country.

DISCUSSION.

Dr. G. S. Bryan (Amory): Mr. President and Gentlemen: This is a very important subject that Dr. Arrington has brought to us for consideration, and I also think it is a very splendid presentation of the subject, and I am a little bit hesitant about undertaking to open the discussion of the subject, yet it is with much pleasure that I do.

We are taught in Scripture that no man lives unto himself, and no man dies unto himself. It is true, I think, I know it is true; it is particularly true of Doctors, yet I fear that we as Doctors think very little along that line. Dr. Arrington brought out that every bone set, every bone or lesion was not only a service to the individual, but to the public, and that is true, but in the field of curative medicine I think we can do the most good as socialists—it is in this field of medicine that I think we can do the most good. I want to illustrate by a story that I used to tell. Soon after the World War, as that is the only war I ever remember, there came into my office a man in uniform. He introduced himself to me as Maj. Somebody, said he belong to the United States Public Health department; that he had been loaned to the State of Mississippi to make a malarial survey; that he had come into my county, and naturally thinking the county health officer lived in the county seat rather than out in a small town, he had gone first to the county seat and inquired for the county health officer. At that time I was acting as county health officer, and he said to me "I am leaving the county, and only came up to present my compliments to you and tell you why I am leaving your county without putting on the survey." He said, "Well, in your county site I visited each of the Doctors and they measured up, I think quite well with the Doctors in any town in the state of Mississippi." He said, "I got very little sympathy—very little co-operation. I went to one of the most prominent physicians of the town and asked him if he was willing to cooperate and he said (pardon the language) "Hell, no why should I cooperate with you in stamping out malaria? I asked him "Pray, why shouldn't you?" and he said, "For the simple reason that more than 50 per cent of my work is from malaria." He said, "I am shaking the dust

of the country off, because I find that sentiment here." Pretty soon he had shaken the dust of the State of Mississippi off and was gone. I am wondering if he found that same sentiment elsewhere.

It was my good fortune some years ago to take a small part with Dr. Darrington and others present, in putting on a program of public health and hygiene in the State of Mississippi. We were up against a stone wall. There seemed to be no open avenue, and I remember that I myself suggested to the Board that we put on a campaign of education, go direct to the people, and it was something new at that time. We hired a man to canvass the state and talk to the lay people on the subject of health and the prevention of disease. It is now bearing splendid fruit. Mississippi is coming into her own, so I want to say this not as a Public Health officer, not a member of the staff of the State Board of Health, but as individual practitioner, I want to appeal to every one of you and try to impress on you that I think the most important duty devolving on any physician is not to cure sickness, but to prevent sickness, and thereby lengthen the span of human life and add to the happiness and to the prosperity of the state. Last week in a convention that was held in the city of Memphis—I think it was Child's Welfare, I forget the name of the convention, but there were 2500 delegates there and Dr. Lyman Fisk made this rather startling statement, startling to me at least. He said, "I believe that it is possible in the lifetime of those now living to extend the span of human life from 45 to 60 years, not by curing disease but by teaching the people the cause of sickness and showing them that the prevention of disease is almost always near at hand. Forty-five to sixty years added to the span of human life. Isn't that worth striving for friends? I think it is.

Dr. O. N. Arrington (Closing): Mr. Chairman, this is rather a dry subject, and knowing that we are all anxious to get through, I will just give the rest of my time. I thank Dr. Bryan and the people for their patient hearing, and I think there is room for better development of the auxiliary of medical men. I make it a point that the auxiliary has done greater work toward the development of the social side of medical work in Mississippi than any other one function I know of. I thank you.

THE RELATION OF THE SURGEON AND THE ANESTHETIST TO THEIR PATIENT.

ISIDORE COHN, M. D.,†

NEW ORLEANS.

"Whatever triumphs still hold the mind,
Whatever gifts shall yet enrich mankind,
Ah, here, no hour shall strike through
all the years,
No hour so sweet as when hope, doubt and
fears,
'Mid deepening silence watched one eager
brain
With Godlike will decree the Death of
Pain."

Weir Mitchell.

Anesthesia as a specialty is young. In spite of the fact that the birth of anesthesia antedated Lister's remarkable work by nearly twenty-five years, specialization in anesthesia is well within the memory of many of you who are members of this Association.

The first to practice anesthesia as a specialty in the United States was Dr. Thomas Bennet. The British Association of Anesthetists was organized in 1897 with Dr. Buxton at its head. The American Association of Anesthetists was organized in 1912 at a meeting of the American Medical Association. Your own Association was organized in 1922 through the efforts of Dr. Hamilton Long.

The first to practice anesthesia exclusively in Canada was Dr. Samuel Johnson in 1907. One of the first to devote his practice to anesthesia in the South was Dr. Ansel M. Caine of New Orleans, who began his active work in 1909.

It must be a source of pride to the American Anesthetists to note that our Canadian neighbors acknowledge that Americans were pioneers in anesthesia, and in particular Dr. Samuel Johnson has stated that Dr. Frank McMechan "stands

foremost as the great exponent of the development of the art."

It is a privilege to address an organization whose guiding spirit, Dr. W. Hamilton Long, has been acclaimed by national and international bodies as a leader in fostering research, advancing teaching and who, by his untiring efforts, has done so much in the service of Anesthesia.

Of him it may be said, as has been said of Dr. Sidney Rawson Wilson: "For him there is more in anesthesia than the mere production of sleep. In it is wrapt up the mystery of life and death, of dreams and awakenings, of the separation of soul from body."

You have the privilege of following in the footsteps of those who, according to the late Sir William Osler, gave the "greatest single gift ever made to suffering humanity; at a single stroke the curse of Eve was removed."

Oliver Wendell Holmes said of the introduction of ether and chloroform, "The fiercest extremity of suffering was steeped in the waters of oblivion and the deepest furrow in the knotted brow of agony has been smoothed away forever."

* * * * *

In discussing the subject of the Surgeon and His Patient several problems present themselves:

1. What are the surgeon's obligations to the patient?
2. The relation of the surgeon and the anesthetist: is the anesthetist to be part of the surgeon's staff, or is he to take his place as a consultant?
3. What is the relationship of the anesthetist to the patient: is he to be merely one who puts the patient to sleep so that the patient will be oblivious to pain, or does he appreciate his responsibilities? Is he to be prepared by proper training to meet emergencies and what constitutes proper training?

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4. What should be the relationship of the surgeon or the anesthetist to death, both immediate and delayed?

In approaching the first of these problems, the relationship of the surgeon and the patient, I must quote rather freely from a previous paper of my own on this subject.

"A surgeon should appreciate, above all, that expression of Emerson, 'Character is higher than intellect.' You must agree that the surgeon without character is not worthy of the name."

"When the patient selects the surgeon, he does it in the pursuit of happiness; without health there can be no real happiness. Disease distracts one's attention from those things which he could do to contribute his share to the welfare of the community. In this light our responsibility looms large."

A surgeon should appreciate that he is dealing with that which can not be recreated by the hand of man; that the all to a family is in his hand materially, that through neglect or ignorance, an irreparable damage may result.

To relieve suffering, or prevent it, is certainly the most merciful act given to man to do.

The appreciation of our moral responsibility is the first step in the line of duty to the prospective patient.

Anesthesia has made modern surgery possible. Modern surgery has made the development in anesthesia a necessity.

Crawford W. Long, Morton, and James Y. Simpson made their contributions before Pasteur.

Lister linked the two great discoveries and has made the chain complete.

Increasing knowledge demanded that new fields which were opened to surgery should be invaded. The problem which confronted surgeons has been not only to

make surgery possible, but to make it safe. Many notable workers have invaded the field and have contributed their share, but in recent years the most notable work has been the work of Luckhardt.

His contribution is the most valuable because it represents a scientific application of a principle which is based upon research.

The most notable contribution in recent years has been the skilled anesthetist and not the particular drug, according to Finney.

Many of you like me can look back over a period of observation of twenty-five years. During the early part of that period we recall the long struggle which preceded the stages of anesthesia, and the many days of nausea, persistent vomiting, urinary suppression, delirium and the not infrequent fatality which followed in the wake of the operation.

The anesthetic risk was great because of the nature of the administration and the toxic nature of the drug.

Local and regional anesthesia were developed as a means of obviating the dangers incident to general anesthesia.

Surgeons needed capable anesthetists. Demands in any field are never unanswered long. Hewit, Buxton, Bennett, Gwathney, Long, Caine and others arose to serve the cause.

As a class surgeons are men of character. In their desire to perform their duty, with the least possible morbidity and mortality, it was not long before surgical literature became flooded with pleas to "save the hundredth man" and to conserve the patient's resistance.

In 1909 R. S. Cathcart at a meeting of the Southern Surgical Association said: "The office of the anesthetist is second to none at an operation, for upon him depends much of the successful termination of a case. Timidity results in an imperfect anesthesia, while, on the other hand, ex-

cessive use of the agent may kill the patient on the table or produce serious post-operative complications. The profession should encourage men to become skilled anesthetists. He should be thoroughly reliable, a man of ability and good judgment, and before the selection of any agent for an anesthetic is made cases should be reviewed and patients examined with him, and upon his advice the selection based."

It remained for Yandell Henderson in 1911 to bluntly reveal the truth in regard to fatalities following ether anesthesia. He said: "The majority of all deaths under anesthesia fall into one or the other of two general classes: those of primary respiratory failure, and those in which sudden cardiac standstill is the critical feature. The attitude of surgeons towards these two forms of death presents a peculiar contrast. They blame the first on the anesthetist, the second on the patient."

"The principal point which I wish to urge in this paper is that in the large majority of fatalities of the cardiac type these expressions are mere excuses."

"I believe that these forms of death and in fact by far the greater number of all deaths under anesthesia are fundamentally due to acapnia resulting from the excessive pulmonary ventilation of the stage of excitement."

Raymond Coburn in 1913, pleading for better anesthesia, said: "To handicap Nature needlessly with the anesthetic is sometimes to turn the tide of battle against the one we are striving to aid."

Following the valuable teaching of Henderson, we find A. D. Bevan in 1915 advocating "drop ether and gas and oxygen."

In 1927 the American Surgical Association expressed its interest by way of a symposium which was participated in by Bevan, Richardson, Finney and others. In summary their conclusions were for better anesthesia. We need more time devoted to

teaching of the subject and consequently more skilled anesthetists. Finney said: "The greatest advance toward the solution of this question of anesthesia is the introduction of the trained anesthetist."

Surgeons are no longer willing to permit the use of the expression "unavoidable surgical calamity." Cutter say: "In the ultimate analysis poor judgment is more often a tenable expression."

In spite of the above and more, we find that A. E. Rives has recently stated that anesthetist's associations have met with opposition by organized medicine. He asks the question: "Whether this is because of the normal tendency to retard progress, and out of ignorance of the subject in question, prejudice, jealousy or all three we do not know."

My own observation and my contact with surgeons as a whole is certainly contradictory to such statements.

There is neither ignorance, prejudice, nor jealousy in the minds of leaders in either field, but there is a demand for better work, based on more information in each branch.

See what C. Hirsch has to say: " 'Safety first' is the slogan we all have before us. A path can be found through the anesthetic jungle, where dread spectres of sudden death once lurked. These spectres can be banished. The seashore of our anesthetic dream need not in future be strewn with wreckage. The barque of life under our guidance need not drift from its anchorage in a sheltered harbour, nor plunge into a storm tossed ocean, to be prosecuted by tormenting winds or battered by immense waves."

The late Stanley Wilson insisted on the value of breath-holding tests, blood pressure and other equally valuable means which are available to the anesthetist for the benefit of the patient:

Charles T. Hirsch said: "The chances of the patient may be likened to that of a

snowball in hell, unless these matters be considered and we nourish our minds with the combined vintage of the experiences of those who have devoted thought and time in these side lanes of research, which have proved not to be blind alleys."

These quotations emphasize the true partnership of responsibility which exists. Let us separate, if we can, the responsibility."

The surgeon must realize his moral responsibility not to undertake a surgical operation on a patient until he has a complete record of the individual patient's physical condition. The existence of a defect which is mechanically remediable is not an indication for surgery. If the risk involved is greater than the prospects for a safe recovery, the operation is not justifiable unless it is a question of death without intervention.

To decide this question judgment is required.

Judgment is the result of observation, but this must be done with an inquisitive eye; otherwise, time and opportunity are wasted.

Experience enables one to form judgment more readily than his less experienced colleague. But if that experience has not been coupled with a progressive appreciation of the ever-increasing number of laboratory tests, judgment then will be fallacious in an ever-increasing proportion, because of the fallaciousness and undependability of intuition.

Even with the exercise of the greatest care errors in judgment are made.

In order to reduce morbidity and mortality the surgeon must be qualified to approach the diseased organ in a direct

manner. This can be done by the appreciation of the value of detailed anatomic knowledge.

This coupled with gentle manipulations shorten the operation and diminishes the insult from the operation.

If the surgeon has been honest in his advice, painstaking in the analysis of the patient's vital capacity, properly prepared to execute the operation, and careful in the selection of a qualified anesthetist, he has done all but one thing within his power for the welfare of the patient.

The one thing left to be done is, with the counsel of the anesthetist, the selection of that anesthetic best suited to the needs of the particular patient.

Keen said that "the ideal anesthetic will abolish pain by the abolition of consciousness, but without danger to life."

All are agreed that the ideal anesthetic has not been discovered; that all anesthetic agents are toxic in a greater or lesser degree; that the selection of the anesthetic is a matter of greater importance.

Primrose, Ross and Harding have within the last two years discussed in their publications the subject of training of the anesthetist.

Harding's expression summarizes a great need "to be a specialist takes two to three years to learn his work. He must not only know how to give an anesthetic, but when to give them, and when not to give them and what anesthetic to use."

Sidney R. Wilson said: "In no sphere of practical medicine have the extraordinary developments in physiology and pharmacology exerted a greater influence than in the realm of anesthetics."

A. L. Fleming in his presidential address before the British Medico-Chirurgical Society stated: "It is I think no exaggeration to say that the goal every modern anesthetist tries to keep in view is to conduct his administration on purely physiological lines; his ideal is to keep and to leave the patient normal or physiological and it is chiefly by observing certain rather complicated reflex phenomena that he gets near his goal."

If this be the goal how can we expect it to be reached unless the men who qualify pay more attention to the results of modern physiological research.

So long as anesthetists as a group are not trained in physiology, pharmacology, chemistry and physical diagnosis, so long as they are willing to walk into an operating room and administer ethylene and other anesthetic agents without ever having seen the patient before; so long as they are unwilling to accept responsibility for complications and even fatalities; so long as the anesthetist feels a personal affront if the suggestion is made that the anesthetic has been faulty and that some post-operative complication has been due to some failure on his part, just so long will the anesthetists not reach the goal which their position in the operative team should be.

How can we continue to speak of conserving resistance and other superlative idealistic conceptions when our practice does not co-ordinate with our profession.

Let us hope that the dawn of a new day is not distant, then as now the true anesthetist may well wear the badge of the Canadian Anesthetist, "We safeguard those who sleep."

STANDARD MILK ORDINANCE.*

A PLEA FOR UNIFORMITY IN PROCEDURE AND ACTIVE SUPPORT OF THE MEDICAL PROFESSION.

L. S. FRANK, M. D.,

MONTGOMERY, ALA.

The subject of milk control is like every other detail subject, so vast that all I can hope to do in the short time that can be allotted to any one paper in a course like this, is to jump swiftly from crag to crag and touch on the outstanding peaks of the subject, and then look back and hope to see those peaks lined up behind us, and hope that you who are interested may possibly look back or retrace your steps and investigate what may lie upon the slopes of the mountains over which we have jumped, and possibly you can get down to the valleys. I therefore will have to speak quickly and possibly a little bit more concentratedly than you like. I will try to outline the subject about in this way.

1. Why do we need a standard milk control program?
2. What has been the history of the standardized milk program in the United States?
3. What does the future offer, and how can the Medical profession relate itself to it in such a way as to be most helpful to the movement?

First then in regard to the reason for a standard milk program. Why do we need standard methods of milk control? I think I can explain that most simply, most clearly by saying that it is analogous to the need for a common language; that it is analogous to the need for a common monetary system in this country; that the business of a standard milk control is very similar to what would be true if we were to have in Meridian the use of dollars and cents, in Jackson the use of marks, and in

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

Gulfport the use of the lira. We would not understand each other, and in not understanding each other we would fail to have confidence in each other, and failing to have confidence in each other, we would fail to make the ideal progress.

Certainly the history of milk control has demonstrated that we have failed to make the ideal progress. I do not know how many of you, who have had occasion to investigate the source of the milk supply of this country, know as you go from state to state that it is impossible for you to have confidence in any milk supply, and if you move your family, it takes you quite a while to know that the milk is what you can trust. You do not know the Health Officer, you do not know that you can have confidence in his work. And if you know what I know, you know that the vast majority of health officers have far less control in the milk department than anywhere else. Certainly milk control has not been taught in our public schools. Certainly it is not yet being taught in our schools of medicine, in our schools of engineering, from which some of the men are taken, and the truth is that the majority of men when they are given milk control know very little or nothing about the subject, and therefore we are unable to have the confidence in the milk supply which we should have and which would induce us to drink as much of it as possible.

We need a common language in order to have confidence in each other. Now I think it goes without saying that if we were to have a standard method of milk control, we would have a better milk control. The first item is one of mutual confidence, the second is excellence. Anything that is not standardized embraces a big factor of low quality stuff. You know very well that when milk control is handled in all of the cities of the United States in a haphazard way, what a big proportion of the cities are going to have a low quality supply, therefore we need standardization. First because we need mutual confidence,

and second, because by standardization we will increase the level of the milk quality. I think that is demonstrated by the fact that there are reported in my office approximately fifty epidemics of milk disease every year in this country alone. I know there are many more from milk disease than are reported in my office. That does not represent more than 25 per cent of the amount. Any condition which results in fifty milk disease epidemics offering per year, with the knowledge that there must be many more, is a serious thing and therefore from the stand-point of increasing and improving the quality of milk supply we need a standardization of our methods.

Thirdly we need standardization of our methods because the problem of milk control is getting into the transition phase. If you look back on the years during which America has grown, it is easy to conceive of the fact that in the past milk control was a purely local question. Each city and town derived its milk supply from small areas. Now that we are developing, that our transportation system is growing, we find that milk for one city is apt to come from an enormous area, so that Florida is getting milk from Wisconsin. We ship milk from Alabama to Washington, D. C., and to bring it closer home the city of New Orleans draws a lot of milk from Mississippi. In other words, it is an interstate problem, and I think your state health department is very keenly aware of the fact that some sort of standardization is necessary in view of its experience with the problem of the milk supply that goes to New Orleans. We have to have common understanding between the states. We can not afford to have Louisiana have one set of standards, and Mississippi another. The State officer of Florida says to the state officer of Alabama, "We are taking milk from you, will you tell us that your milk is safe from the Florida standard?" He answers "I wish I could," and if Florida was the only state that Ala-

bama was shipping milk to I could take Florida's standard and tell him that it complied with his unit, but unfortunately Alabama is shipping milk to a great many states, and while we would be glad to apply Florida's standards, we will be hanged if we will apply ten different standards. The expense would be exorbitant, so the only thing we can say is we will apply Alabama's standards and tell you if the milk complies with our standards. So what we really need is this common system by means of which we can have confidence in each other and which will facilitate interstate milk shipments, because gentlemen what we need is to reduce as far as possible the resistance of low milk supplies. Milk is the greatest food we have; it contains everything necessary for the ideal food except iron, and iron you can get in other ways, and we certainly do not want any resistance to a low milk supply, and therefore from that standpoint we need standardization.

Now having outlined the general need for standardization, I would like to call attention to one element—I pass over quickly—that of confidence of the dairy men in ourselves. Until the dairy industry feels that we, the health officers know what we are talking about, it is not going to comply cheerfully with our demands. Until they get away from the idea that every health officer is working up in his mind his own idea of milk control, that it is a personal attack on the people, that it is an individual thing against the dairymen of that community, so long as every health officer has a different method of control (most of them must be wrong), as long as they maintain that idea, they will resist our demands to bring about a better milk supply, and therefore again we need a standardization of our milk control problems.

Having outlined rapidly the average program, I would like to give you a history of the program. It began in 1922 when Alabama asked the public health service to help it organize a standard state program,

and it has progressed rapidly to the present time. In Alabama we worked up a standard program that would do, and it has resulted in a standardization of our ideas of that which is the highest grade of raw milk, the safest form of Pasteurized milk. There will be Grade A raw milk and Grade A Pasteurized, so that wherever we go over the state of Alabama we know that Grade A is the best, and we will know where we can get the grade with which we can be satisfied. That in general is the program, without specifying definitely that all grades shall be pasteurized, but not being absolutely mandatory because of the consequent factor of our inability to convince the average city council as to the kind of milk control that he should pass.

In other words despite the fact that we know that the safest grade would be milk you should produce and then pasteurize, realizing that you can not get all city councils to pass that kind of an ordinance, what we standardize upon is quality of raw milk on the one hand and quality of pasteurized milk on the other hand, and that requires every dairy man who produces a lower grade to carry it and also grade liberally. That is the system which we have put into effect, the outstanding feature being the grading system. We recognize that we can not force immediately all dairy men to produce the highest grade, and to denominate the different grades and make the highest stand out from the rest. The history has been that Alabama has very rapidly put that program into effect. Thirty-nine cities pasteurize in Alabama and in five years so far as we have been able to recognize, there hasn't been a milk form of outbreak of disease in the State of Alabama—that has been the outstanding result.

Now to progress a little further with history, that work attracted sufficient attention so that other states began to adopt it, and now 14 states are operating under this milk program with over 200 cities adopting the ordinance, and it looks as if

there will not be any generations before most of the cities in the United States will be operating under one standard program. I do not know whether the future will go beyond the American nation or not. I will come back in a moment to a letter I got last week from an Italian in regard to this Milk Code, but I want to say now in regard to the relationship of this medical profession to this work, that the biggest help they can be to this program is to advise their patients in all cases to take only the highest grade of milk. If you are in a city that does not afford pasteurized milk, take Grade A. raw milk. The difference is practically very little. On the other hand if you have a pasteurizing plant and you are not quite certain that you can depend upon your patients themselves pasteurizing the milk, recommend that they use Grade A pasteurized milk, and if you are located in a city that hasn't passed a standard milk ordinance encourage your local health officer, and your city council, to get it passed so that it won't be very long before all of the cities in Mississippi will be under the safest form of milk supply, and wherever you are you can depend on safe milk. Already fourteen cities have passed the ordinance and I understand twelve more will shortly do so. We are large enough and in position to pass this ordinance, and I hope the medical profession will get busy and see that this is done.

DISCUSSION.

Dr. W. E. Noblin (Jackson): I was just sitting there wondering what his Italian friend would say had he heard this wonderful paper—what he would do with it. I am afraid he might kidnap him. I certainly enjoyed the paper—I think it is wonderful. Of course, just recently having gone through with voting on all the standard ordinances of milk control it is worth quite a bit to me, and he has covered the ground so thoroughly there is little left to say. I just wanted to mention one or two things, and one is what he has to say relative to the physicians and their patients. I believe that the physicians as a whole are too quick to carelessly recommend milk. I believe that is misleading a great many parents who follow this advice without first having looked into the whole thing. Another thing, I think we ought to discourage the giving

away of milk until we have a standard milk ordinance. We have junior leagues, auxiliary leagues, American legion and other people who are giving away a tremendous amount of milk. Now that milk is given on the basis of underweight. They have no record as far as the donors are concerned as to whether or not that milk is pure or not. For one thing that child has never been examined from any angle, as to whether it was only milk it needed, or whether it was down from defects, so I think the best thing for the health officers to do, until we get the ordinance, is to discourage the wholesale giving of milk by the local people. Now the junior ladies are making a specialty of recommending milk to infants and pre-schools. To me that really is a little bit of a dangerous situation. In the first place, the organization hasn't looked into the subject; they haven't looked up just where they get the milk, and in some instances through whose hands it has been handled, and I really think we had better do a little bit of discouraging of milk as much as we have been boosting it, until it is standardized. Now, we have over in Jackson a big supply of milk coming from nine different counties. We had no check on tubercular-tested cattle; we had no check on the typhoid carriers. Of course, we do have a check on the bacterial count and the butter fat. There have been just lots of that milk given in Jackson, and the American Legion think they have done a wonderful piece of work, and, had they had a milk ordinance, they would have. They have given as much as \$80.00 worth of milk a month. And I would like to say to the physician in his discussion of this fact with the mother, as Dr. Frank has brought out, be absolutely sure of what milk you are going to give. As time is short, there is nothing I can add to that, but I would love for the health officers and the physicians to look at the danger side as well as the food value and the condition of the supply.

Now, one more thing. I believe that the county health officer of the unit should function from a money standpoint in favor of milk men. I believe our offices should be used to further profit the production of milk. To help that group we should function to a certain extent with the Board of Trade, we should assist the dairyman in every way we can, and then give him information as far as we can of what has been going on in other states. I enjoyed Dr. Frank's paper and I hope we will have him next year. I thank you.

Dr. D. V. Galloway (Clarksdale): As one of the younger members of the association I think it will be presumptuous of me to attempt to discuss this paper, but when we go into a house as a doctor, we can ask the patient how he feels, what is the matter with him, and he can give

us information about himself and his symptoms. In Coahoma County at this time we are undergoing the application of this standard milk ordinance; we have had it about two months, and I can tell you of two reactions we have had so far. One of them is that some of the people have said, "You have gone to work to try to standardize this milk here—why have you taken only milk? Why don't you take all foods? Why don't you go into the houses and certify them? Why isn't all other food as important as milk?" And then there is another one from the dairymen. They have been required to secure rather expensive equipment, some of them have spent as high as \$15,000 in new equipment to meet this ordinance, and they say, "You are making us spend money on new equipment," and so they are beginning to look the cows over—they think that while they have been satisfied with any kind of a cow previously, that now that they have this fine equipment they want to have good cows. The county demonstrating agent could not get them very much interested in better cattle, but now they are beginning to look on cattle differently because they are putting on fine trimmings. These are the two things we have noticed in putting this standardized ordinance into effect. Thank you very much.

Dr. J. W. Brandon (Woodville): I would like to ask Dr. Frank what has been the dairyman's attitude towards milk inspection in Alabama, and how much increase in production and in sales there has been under this regime?

Dr. F. M. Smith (Vicksburg): I heard Dr. Frank some four years ago at New Orleans when he first began talking this standard milk ordinance. I confess I didn't understand it then, and perhaps I had better confess I don't understand it now, for I haven't digested all that is in the Code, but I do want to decide this thing if we are going to be health officers, if we are going to keep the fine thought and purpose in our minds of seeing that the citizenship of the country have one of the best foods produced in the most wholesome way, it is up to us to study that Code, and I mention the reasons for same.

I believe that we are going to have a part in the standardization of this milk ordinance, that we are going to put 12 inches in a foot, ten dimes in a dollar or 100 cents in a dollar; that we are going to make it work through all the valleys and not on the mountain tops, as he said. We have got to master this thing and understand it and go into it as systematically as he has tried to show us today. We have records to keep in our offices. I do not think that we should be so much concerned in the economic situation. That is not health work, as I understand it, though I do think it is well to have some consideration for

your dairymen, but we have to do something for the protection of the babies of the country. Now, then, to make this come home—the Jewish rabbi called up my office the other day to know if we could furnish certified milk; said his daughter was going to bring his little grandchild down to visit him, and he wanted to know about the milk. We told him we had Grade A raw milk, which was identically the same as certified milk. But if we are going to be health officers we want to keep those records correct in our offices. We want to post just as regularly as does the bank; we want to report every laboratory report to the dairy men; we want to record it on our ledger, so that any men or any citizen in that city dropping into our office at any time can see the records as they stand and the indisputable fact as to what that county is doing. I am glad always to hear Dr. Frank. I have had a varied experience in the health work. I have worked in Alabama, Louisiana and Mississippi, and have had this milk ordinance to deal with on various occasions, but as the time goes by, I know that here in this field the health officer can contribute the greatest amount of service to the people he is serving.

Dr. L. S. Frank (closing): The two questions were, first, as to the attitude of the dairymen, and, second, as to the increase in consumption, or the effect on milk consumption. There was some response to the program last January that seemed to threaten for a moment the Federal appropriation for this work. I felt that it was desirable that not only I report to Washington what the attitude of the dairymen was toward the work, but that they be asked through outside channels about it; therefore, I suggested to the Surgeon General at Washington that he get directly in touch not through the sub-office, my office, with the health officers of some 98 American cities which had operated under the program for about a year and a half or two years, and, therefore, long enough to give them a chance—the dairymen—to make up their minds as to whether they liked it or not. Of the 98 cities to whom inquiries were addressed on last January by the Federal Government, which inquiries were something like this: "What do the health officers think of the ordinance in your city now that you have had it for a year and a half or two years?" and "What do the dairymen think of it and what is the effect on milk consumption?" Of the 98 cities some 80 replied, and in those replies were contained not only the reaction of the health officer, but the reaction of as many dairymen as he could get together on short notice to send in their attitude. Altogether there were some two or three hundred different replies from those 98 cities, and with just two exceptions they were favorable from the dairymen. Every one

from the health officers was favorable. One exception from the dairymen was a city that had not had an ordinance very long and the dairyman said that he thought the ordinance ought to be adjusted to each local community. Just what he had in mind I do not know. The other objection was from a dairyman in Montgomery, Alabama, and when we investigated we found it was a joke. He was asked what he thought of the ordinance, and his answer was "It is fine for the public but hard on the dairy men." When I investigated it I found that he had said, "I don't want to send a wire to Washington," and he then began to be jocular and said, "It is all right for the public but hell on the dairymen." He didn't send it that way, though; if he had we would have known it was a joke, but as it was worded we thought it best to investigate it and find out his reason.

But getting right down to facts many, many telegrams were received from the dairymen in about 90 cities and only one was the least unfavorable. When that big a percentage of dairymen think an ordinance is fair, you can depend on it being fair.

For the second question, I can better answer that question by giving the effect on milk sales rather than on milk examination, because we do not know what has happened to that part of the public which drank milk from private cows. The sales of market milk in 14 Alabama towns where we have made extensive research indicates that the sales have increased over 100 per cent; that the present amount of milk consumed is over 200 per cent as much as it was before. That is a tremendous figure—extremely significant; and I think one of the gentlemen who said we should discourage milk consumption until we get a standard milk ordinance is right. We ought not to delay getting this ordinance though. My own philosophy is this: drink safe milk if you can get it, but drink milk. In other words, to put it this way, milk has done far more good than it has done harm. All of the harm which an entirely uncontrolled milk supply can do is not as great as the good it does uncontrolled. If we keep that in mind we will realize the truth of that rather trite statement. Now that doesn't mean that the gentleman who spoke is fundamentally wrong. If he will translate it, he will twist his attitude a little bit, and say, instead of devoting your energy to increased milk consumption until you have good milk, increase your efforts and we will get a milk ordinance.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.*

ALTON OCHSNER, M. D.†

NEW ORLEANS.

Willis is given credit as being the first to employ surgical means in the treatment of pulmonary tuberculosis. In the seventeenth century he reported a cure in a case of tuberculous cavitation following the production of a "fontanell" on the diseased thoracic side. In the eighteenth century numerous reports were made of cases of pulmonary tuberculosis treated surgically by drainage of the pulmonary cavities. The drainage of the cavities was followed, in the nineteenth century, by an attempt to cure the process by injecting an antiseptic into the lung (Mosler). Following the injection treatment of pulmonary tuberculosis an effort was made to remove the pathological process surgically. Bloch was the first to attempt this but was unsuccessful. Tuffier first successfully removed surgically a small tuberculous focus at the apex of a lung. James Carson, in 1821, first suggested that artificial pneumothorax be used in the treatment of pulmonary tuberculosis. Forlanini, in 1882, reported cases successfully treated by the introduction of gas into the pleural cavity.

In 1888 J. B. Murphy reported five cases which had been benefitted by the production of an artificial pneumothorax. De Cervenille, in 1885, was the first to resect ribs, in order to collapse a pulmonary cavity. In 1888 Quincke and Spengler, independent of each other, advocated the use of an extrapleural collapse. Brauer, an internist, suggested that a collapse of the lung be produced by multiple rib resection. This suggestion was executed by Friederich in 1907. A collapse of the thorax was produced by multiple rib resections according to the technic of Schede. The resection of the paravertebral portions of the rib, in

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order to bring about a collapse of the affected side, was first advocated and popularized by Sauerbruch.

The treatment of surgical tuberculosis consists primarily of immobilization of the part, with decrease in function, without interference with the nutrition of the involved area. The surgical treatment of pulmonary tuberculosis consists of an attempt to immobilize the affected lung, producing, as near as possible, physiological rest without, at the same time, interfering with the nutrition of the lung. The operative procedures which are employed at the present time may be divided into two main groups—the conservative, which are non-destructive, and the radical or destructive. It is important to distinguish between these two types of operative therapy, even though the aim in each is to produce a collapse of the involved lung. The indications and the prognosis are different for the two types. The conservative operative procedures consist of the production of an artificial pneumothorax and operations on the phrenic nerve.

ARTIFICIAL PNEUMOTHORAX.

A number of theories have been advanced explaining the beneficial effects obtained following the introduction of the gas into the pleural cavity. The deflation of the lung, producing physiological rest, is supposed by most observers to be responsible. Kuma has shown, experimentally, that even in the presence of a closed pneumothorax, there is movement of the collapsed lung; much less, though, than that which existed before the collapse. Cloetta believes, from his experiments, that the circulation in the collapsed lung is better than that in the expanded lung. Dock and Harrison, working with rabbits, found that immediately after the collapse of one lung there is little change in the volume flow of blood. Within three days, however, from only 9 per cent to 18 per cent of the total blood volume flows through the collapsed lung. Kuma has corroborated these experimental results. These observa-

tions, with the exception of Cloetta's, would lead one to believe that the blood supply and nutrition of the collapsed lung in cases of artificial pneumothorax are decreased. This appears paradoxical because of the improvement which ensues. The observers, however, have shown that there is a decrease in the pulmonary circulation, from which the nourishment of the lung is not derived. The pulmonary arteries contain blood which is to be oxygenated, imposing a strain on the lung. The function of the lung is increased. The blood supply from the bronchial arteries, however, is probably not materially decreased during the pulmonary collapse. Following an artificial pneumothorax, the function of the lung, and the physiological demand upon it for oxygenation of blood, is decreased, whereas the general circulation, from which the lungs receive their nutrition, is not altered. The beneficial effects produced by an artificial pneumothorax become evident. The function and mobility are decreased, whereas the nutrition is not impaired.

The indications for an artificial pneumothorax, as given by Muralt, are as follows:

1. Unilateral or chiefly unilateral pulmonary tuberculosis.
2. Severe pulmonary hemorrhage.
3. Spontaneous pneumothorax after the air has been completely absorbed.
4. Serious pleural exudate and tuberculous empyema.

Theoretically one is unable to treat a case of unilateral pulmonary tuberculosis, since it can be demonstrated pathologically that by the time a tuberculous process has progressed enough to produce symptoms the other lung is already involved. Practically, however, there are, clinically, cases of unilateral tuberculosis in which the tuberculous process is most marked on one side and gives no clinical evidence of contra-lateral involvement. Other cases showing evidence of advanced process on

one side, with evidence of a quiescent lesion on the contra-lateral side may be treated advantageously by artificial pneumothorax.

The contra-indications to pneumothorax therapy are:

1. Extensive process which is active in both lungs.
2. Extensive chronic non-tuberculous processes in both lungs, i.e., chronic bronchitis, bronchiectasis, e m p h y s e m a , asthma, and pleurisy.
3. Severe intestinal tuberculosis.
4. Severe diabetes mellitus.
5. Severe cardio-renal disease.

Pneumothorax therapy is indicated in from five to ten per cent of all cases of pulmonary tuberculosis. The technic of the production of an artificial pneumothorax is, briefly as follows:

The apparatus employed usually is of the Saugman type or a modification of it. It consists of two bottles so arranged that both may be raised or lowered. The two bottles are connected by rubber tubing in such a way that water from one will flow into the other by siphonage. The water flowing from bottle No. 1 into No. 2 displaces the gas. Bottle No. 2 is connected by a rubber tube to a needle introduced into the pleural cavity, which is also connected to a manometer. It is essential to have sterile cotton interposed between bottle No. 2 and the pleural needle, so no foreign particles are introduced into the pleural cavity. The gases which are most frequently employed are nitrogen, oxygen, and air. Nitrogen is preferred by some because it is slowly absorbed. As air contains about 80 per cent of nitrogen, it, is, at the present time, considered the gas of choice because of its accessibility and cheapness. The needle, which should be of the Saugman type, is introduced in the intercostal space, usually in the posterior axillary line, at about the seventh

or eighth inter-space, either with or without local anesthesia. Entrance into the pleural cavity is evidenced by the negative pressure manometric readings and the respiratory fluctuation. The negative pressure varies from minus 10 cms. of water during inspiration to minus 2 or 3 during expiration. As soon as the operator is positive that the cannula is in the pleural cavity, air should be slowly introduced. The patient's condition must be observed carefully, and any evidence of pain should cause a cessation of the procedure. After introducing about 100 c. c. of gas the pressure is again taken. If the pleural cavity is free from adhesions, there will be little reduction in the negative pressure. If, however, the needle is in a pocket, produced by adhesions, a markedly positive pressure may be encountered, in which case another site should be chosen. At the first filling never more than three or four hundred cubic centimeters of gas should be introduced. There is considerable difference of opinion concerning the amount of air which should be introduced. Morgan, in 1913, demonstrated that if a small amount of air were introduced into the plural cavity a "selective" collapse of the lung would result. The gas which is present tends to accumulate over the diseased areas of the lung, which are less expansile than the normal lung. Bendove has recently emphasized the importance of the "selective," or "expansile," type of pneumothorax. Yates has shown that before any operative procedure on the thorax is undertaken that it is essential to determine the cardiac reserve. Because of the lessening of the capillary bed of the pulmonary system, a strain is put on the heart, often producing signs of cardiac embarrassment. This is true especially in the cases of pneumothorax in which a marked positive pressure is produced in the pleural cavity. By the frequent introductions of relatively small amounts of air, always maintaining a certain amount of negative pressure within the pleural cavity, Morgan and Bendove believe that a collapse of the tuber-

culous process may be obtained without interfering with the function of the rest of the lung on the affected side and without producing any circulatory disturbance. During inspiration the manometric reading should never be less than minus 3 or 4 cms. of water.

Pneumothorax therapy is applicable only in those cases of pulmonary tuberculosis in which there is a free pleural space. The treatment by means of artificial pneumothorax offers relatively little in those cases in which numerous pleural adhesions bind the visceral to the parietal pleura and thus prevent the collapse of the lung, especially the involved portions. Jacobaeus advocates the division of the fine adhesions by means of an electric cautery introduced into the pleural cavity through a thoracoscope. The procedure, while useful in certain cases, has a very limited application.

COMPLICATIONS OF ARTIFICIAL PNEUMOTHORAX.

Pleural shock: The exact nature of this condition is not known. It is supposed by many observers to be the result of the introduction of air into a pulmonary vessel, causing an air embolus. While embolism accounts for a large number of so-called cases of pleural shocks, there undoubtedly exists such a condition as pleural shock *per se*. The exact mechanism is not understood, the symptoms probably being the result of an irritation of a bronchial nerve. Clamping of the bronchi during a pneumonectomy often produces symptoms similar to those of pleural shock.

Perforation of the lung: This complication occurs in from 3 to 6 per cent of all cases of pneumothorax. It most frequently results from the tearing of the lung at the point of attachment of an adhesion.

Pleurisy: Pleurisy develops in about 50 per cent of all cases treated with artificial pneumothorax. Saugman found this complication in 160 of 238 cases. The time of appearance, in his series of cases, was as follows: within the first three months, 34.4

per cent; the first six months, 48.3 per cent; the first twelve months, 55.4 per cent. Most cases of pleurisy encountered during the course of pneumothorax therapy are the result of tuberculous involvement of the pleura. Pleural effusions may be divided as follows:

1. Those in which the fluid is of a serous character and has little tendency to increase. In these cases the fluid is usually absorbed spontaneously in a period of weeks or months.

2. Fluids which in the beginning are distinctly serous, have a tendency to increase in amount, and remain for a long period of time. Later, the fluid becomes cloudy. Large numbers of tubercle bacilli are found in the sediment, but no evidence of other microorganisms.

3. This group consists of those fluids which show evidence of secondary infection.

OPERATIVE PROCEDURES ATTACKING THE PHRENIC NERVE.

Phrenicotomy, phrenisectomy, phrenic-exaïresis, phrenemphraxis: Resection of the phrenic nerve, as a therapeutic measure, in lower lobe tuberculosis and bronchiectasis was advocated by Stuertz in 1911. The operation was first carried out in animals and in human beings by Sauerbruch, who, in 1913, reported five cases treated in this manner. As simple division of the phrenic nerve often leads to failure, more radical procedures were soon devised. Felix, working in Sauerbruch's Clinic, showed, from his anatomical studies, that accessory filaments occasionally enter the phrenic well below the clavicle. In order to divide all of these filaments, in addition to the main trunk of the phrenic, he advocates evulsion, or exaïresis of the nerve. The accessory phrenic nerve arises from the fifth cervical and lies 3 cms. lateral to the true phrenic. It enters the thorax in front of the subclavian vein and joins the main phrenic nerve either where the scalenus anticus muscle attaches to the

first rib or at a lower point. The phrenic nerve may receive fibers from the nerve to the subclavian muscle, from the spinal accessory, vagus, suprascapular nerve, or hypoglossal. Recently Yates has advocated a more conservative procedure especially to be employed in the early cases of tuberculosis, in which it is not desirable to obtain a permanent paralysis of the diaphragm on the affected side. This procedure, which consists of crushing the phrenic and its accessory branches, Yates designates as phrenemphraxis.

Operations on the phrenic nerve have as an object either a temporary or a permanent paralysis of the diaphragm on the affected side. Disturbance of the motor innervation of the diaphragm produces a flaccidity of that structure, causing a marked elevation of the diaphragmatic leaf. The elevation may be from 4 to 8 cms. on the right and from 2 to 4 cms. on the left. It increases with the length of time as the muscle atrophies, which Schlapfer has shown to occur in cases in which the phrenic nerve has been destroyed. Due to its loss of tone and power of contractility, movement of the diaphragm becomes paradoxical, in that during inspiration, instead of descending, as a normal diaphragm would, it rises, due to intra-abdominal pressure. During expiration the diaphragm descends. On fluoroscopic examination the two leaves of the diaphragm are seen to move in opposite directions. Unless paradoxical movement is obtained, following a phrenic nerve operation, except in the presence of dense adhesions fixing the diaphragm to a solid lower lobe, complete blocking of the motor nerve has not been produced.

The indications for either a temporary or a permanent blocking of the phrenic nerve are varied. Yates believes that a phrenemphraxis should be carried out in early cases of tuberculosis, producing a temporary paralysis of the diaphragm, which procedure puts the affected lung at partial physiological rest and increases the

blood supply of the affected lung. Others advocate permanent phrenic interruption in basalar tuberculosis as a preliminary operation for thoracoplasty and in conjunction with pneumothorax. Sauerbruch is of the opinion that a phrenico-exaeresis, or a temporary blocking of the phrenic, has no place in the treatment of pulmonary tuberculosis. It should be used only in conjunction with some of the other operative procedures. Felix reports sixty cases from Sauerbruch's Clinic treated by phrenicotomy alone, in which the operation was followed by a rapid clinical improvement, but in no instance was there any actual healing.

The operative technic, while very simple, is not without danger. Cases have been reported in which other nerves have been mistaken for the phrenic, the most common of which are the sympathetic and the vagus. In Sauerbruch's Clinic the sympathetic was divided once, with a consequent Horner's syndrome. Felix collected seven cases of injury to the vagus nerve; one of injury to the thoracic longus nerve, with partial paralysis of the serratus anticus muscle; one case of injury to the thoracic duct, and the esophagus. Davies gives as dangers of phrenico-exaeresis (1) bleeding from the pericardio-phrenic artery, (2) dragging of the subclavian vein by the accessory phrenic loop, (3) rupture of adherent pleura, (4) evulsion of the vagus nerve. Sauerbruch has observed, among a total of 500 operations on the phrenic, two fatal hemorrhages following a simple phrenicotomy. He has had two cases of air embolism, which, however, did not end fatally.

Technic of operation: Under local anesthesia, using 0.5 per cent novocain for local infiltration, a transverse incision, about 5 cms. long is made about two finger-breadths above the clavicle with its midpoint over the posterior border of the sterno-cleido-mastoid (Fig. 1). The skin, superficial fascia, and platysma are incised. The posterior border of the sterno-cleido-

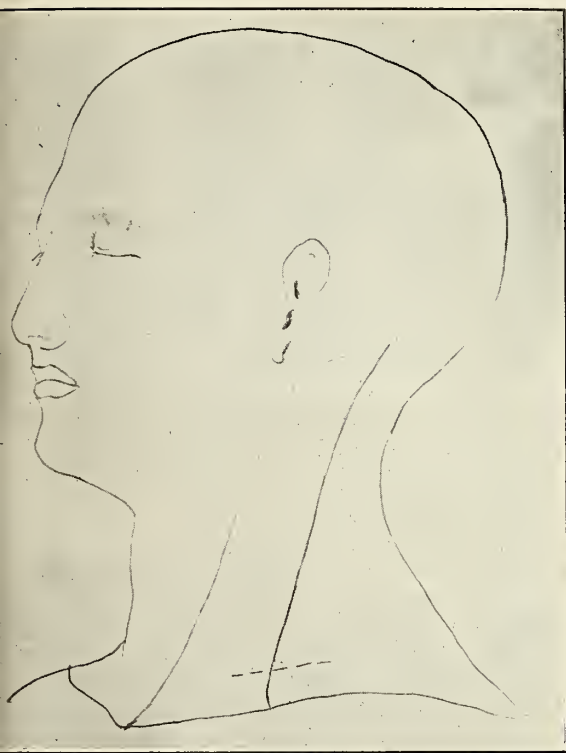


Fig. 1. Diagram showing site of incision for phrenicotomy. Center of incision should be over posterior border of sternocleido-mastoid.

mastoid is retracted medially, and a space containing areolar and glandular tissue is entered. This space is bounded above and posteriorly by the posterior belly of the omohyoid muscle, below by the clavicle, and anteriorly by the sternocleido-mastoid muscle. By inserting the finger directly into the depth of the wound, the scalenus anticus muscle is encountered. The phrenic nerve lies on the anterior surface of this muscle and is often incorporated in its sheath. The space is often crossed by the transverse scapular artery, which usually can be retracted to one side, but may have to be ligated and divided. The phrenic nerve, which arises from the third cervical segment, crosses the scalenus anticus muscle on its anterior surface, passing from its lateral border medially. The internal jugular vein is retracted medially. (Fig. 2.) If the nerve is found to be large, in all probability the greater number of fibers supplying the diaphragm are carried in the main branch. If, on the other hand, it is found to be small, most

of the motor fibers are carried in the accessory branches, which enter the phrenic nerve at a lower level. An exaeresis is performed by isolating the nerve and injecting it with a small amount of novocain solution. The nerve is divided and the proximal end of the distal portion is grasped by means of an artery forcep. By twisting the forcep the nerve is rolled on the forcep, and, in this way, is evulsed. (Fig. 3.) Care must be taken not to attempt a too rapid removal of the nerve, as the nerve filaments may tear. An injury to the pleura or a thoracic vessel may also result. Yates, in performing a phrenemphraxis, operates on the fluoroscopic table, and after exposing the nerve, crushes it, and any of the accessory branches which are visible, with a pair of forceps. Before closing the wound a fluoroscopy is performed, in order to determine whether or not paradoxical movement of the diaphragm is present. If the paralysis is found not to be complete, Yates attempts to locate other accessory nerves and crush them.

THORACOPLASTY.

The indications for a plastic procedure on the thoracic cage are much stricter than those of the preceding procedures. A thoracoplasty is a destructive operation. It should be reserved for only those advanced cases in which a return of the function of the lung is not possible. Brauer sums up the indications very well in stating that the indication for a thoracoplasty depends entirely upon the results obtained following the production of an artificial pneumothorax. In those cases where a free pleural space is present a pneumothorax is the method of choice. In those cases, however, in which, due to adhesions between the visceral and parietal layers of pleura a collapse of the lung, by introducing gas into the pleural space, is impossible, an operative procedure, which decreases the size of the thoracic cage, is indicated. The productive, or fibrous type of pulmonary tuberculous responds better to thoraco-

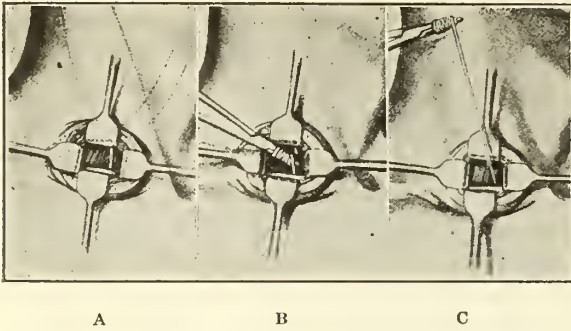


Fig. III. After Lillenthal. A. Exposure of phrenic nerve crossing anterior surface of the scalenus anterior muscle. B. Nerve has been divided. The proximal end of the distal portion is grasped by artery forceps, around the tip of which the nerve is rolled. C. Nerve is being evulsed by winding the nerve on the forceps.

plasty than the exudative type. "Chronicity, unilateral involvement, and pleural adhesions, precluding the pneumothorax collapse of the diseased portion of the lung, constitute the fundamental indications" (Hedblom). Brunner, among 116 cases operated in Sauerbruch's Clinic, found that among 67 cases in which the disease was of the productive type, 10 per cent died, while among 49 chiefly of the exudative type, the mortality was 43 per cent. It is essential that the disease be unilateral or at least the process of the contralateral side be quiescent. In a few carefully selected cases it is permissible, however, in the presence of complete destruction of the markedly involved lung, with cavitation, and in which there is no function, to attempt a graded thoracoplasty, even though activity be present in the contralateral lung. These cases are, however, the exception. The following case is an example:

M. M., female, 26 years; admitted to the hospital May, 1926. For eight years the patient had had an extensive pulmonary tuberculosis involving the right side. During this entire period of time she had been under constant treatment in a sanatorium. At first there was apparent improvement in the patient's condition, but for four years previous to admission she had gradually gotten worse. She came to the hospital with the expressed purpose of having a thoracoplasty done. She felt that, in spite of rigid conservative therapy, during which time numerous unsuccessful attempts had been made to produce an artificial pneumothorax, her condition had gradually gotten worse, and that an operative procedure was all that was left. Examination revealed

dullness over the entire right side of the thorax with evidence of cavitation extending from the apex down to the base. There was some impairment of resonance over the left apex where a few moist rales were audible. Her temperature ranged from 101° to 104° daily. Roentgen-ray examination showed a very marked fibrosis of the entire right lung, with extensive cavitation. There was little roentgen-ray evidence of contra-lateral involvement, probably due to the emphysema on the left side. Because of the activity on the left side, and because of an absolute fixation of the diaphragm on the right side, an operation was deemed inadvisable and, therefore, advised against. The patient, however, insisted upon such a procedure being carried out. A graded paravertebral thoracoplasty, according to the technic of Sauerbruch, was carried out in five stages. After each stage, including even the first which consisted of resection of the paravertebral portions of only the eleventh and tenth ribs, the patient's condition improved. The amount of sputum decreased and her temperature began to fall. She was discharged from the hospital four weeks after her last operation, at which time she returned to the sanatorium. (Fig. 4.) At the present time, almost two years after the operative procedure, the patient is free from symptoms; is, however, a resident of the sanatorium, where she serves in the capacity of assistant superintendent, executing rather heavy duties. The explanation of the benefits obtained in this case is that the markedly involved lung was not functioning. The patient was, however, absorbing considerable toxin from this lung, probably more from the secondary infection than from the tuberculous process. (Fig. 5.) An operative procedure in collapsing the lung could not throw an added burden on the sound lung because of the non-function of the pathological side. The operation, which was carried out in numerous stages, under local anesthesia, so that

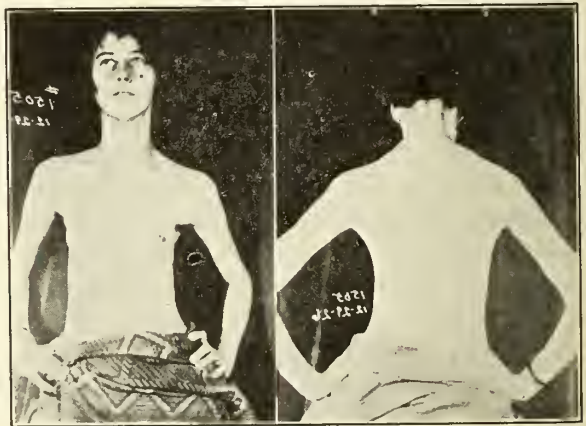


Fig. IV. Patient M. M., on whom a left sided thoracoplasty, according to Sauerbruch, has been done. There is little evidence of deformity.

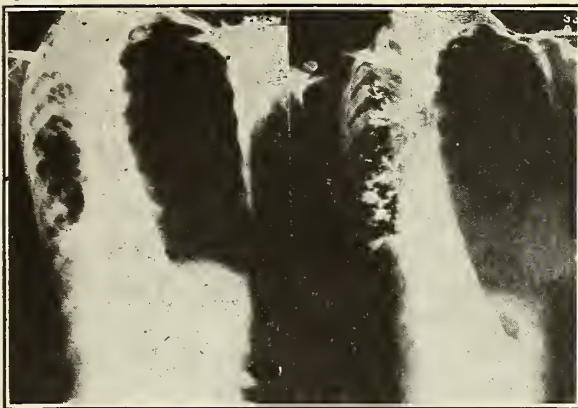


Fig. V. Roentgenographic plate of patient M. M.

A. Plate of chest before introduction of iodized oil. B. Plate of chest after introduction of iodized oil, showing that in spite of extrapleural collapse, there remain large cavities.

relatively little strain was put on the cardio-respiratory system, brought about a collapse of the markedly dilated portions of the pathological lung, decreasing the absorption of toxin. The patient's resistance was then able to overcome the tuberculous process in the comparatively sound side.

Thoracoplasty should not be attempted in children nor in old individuals. The best results are obtained in patients from the ages of 15 to 45 years. The operative procedure of choice is that of Sauerbruch, which consists of a paravertebral extrapleural thoracoplasty. (Fig. 6.) The technic is as follows: With the patient in a semi-sitting position lying on the sound side, both arms are drawn forward. The operation is performed under paravertebral nerve block, and in hypersensitive individuals gas oxygen anesthesia should be added. The curved incision of Sauerbruch is employed, which begins about midway between the shoulder and the neck, extends medially to a point about three fingerbreadths lateral to the spinous processes, then parallels the vertebral column, to again curve laterally in the tenth intercostal space. The operation is best carried out in two stages, beginning with the lower ribs. The paravertebral portion of the ribs, beginning with the eleventh are resected subperiosteally. From 6 to 10 cms. of the ninth, tenth and eleventh ribs are removed. From 12 to 14

cms. of the sixth, seventh and eighth, and from 5 to 8 cms. of the second, third, fourth and fifth, and about 1 cm. of the first ribs are resected. The most difficult part of the operative procedure is the resection of the first rib because of its deep position and its proximity to the subclavian vessels. Either a Sauerbruch first rib shears or a Lilienthal guillotine should be employed. (Fig. 3.) If at any time during the operation the patient's condition does not seem satisfactory, the operation should immediately be interrupted and completed at some second sitting. Sauerbruch advises performing a thoracoplasty in one stage. Most operators perform a two-stage operation, but the number of stages employed depends entirely upon the condition of the patient. Because each rib is suspended from its fellow above, it is essential to resect the paravertebral portions of all the ribs, including the first, in order that a maximum collapse may be obtained. Following the removal of the paravertebral portions of the ribs, the thoracic cage falls and approximates the midline. (Fig. 6.) In order to obviate the pain which may follow a thoracoplasty, it is advisable to isolate the intercostal nerves and inject each with a small amount of one-half of 1 per cent quinine and urea hydrochloride solution. Because of its irritating effect, it is essen-

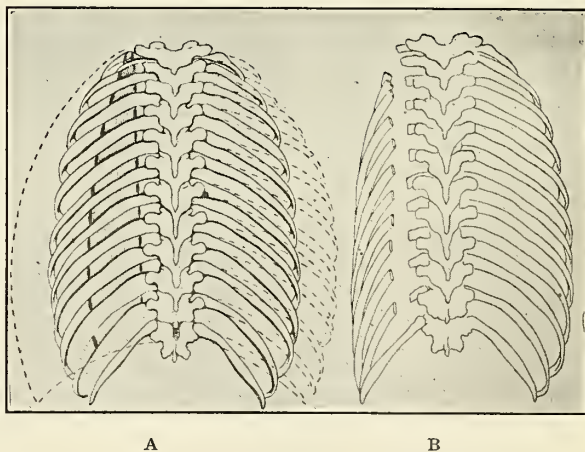


Fig. VI. After Lilienthal. Showing collapse accomplished by Sauerbruch paravertebral thoracoplasty. A. Shaded area denotes portions of ribs resected. B. Collapse obtained following resection of ribs.

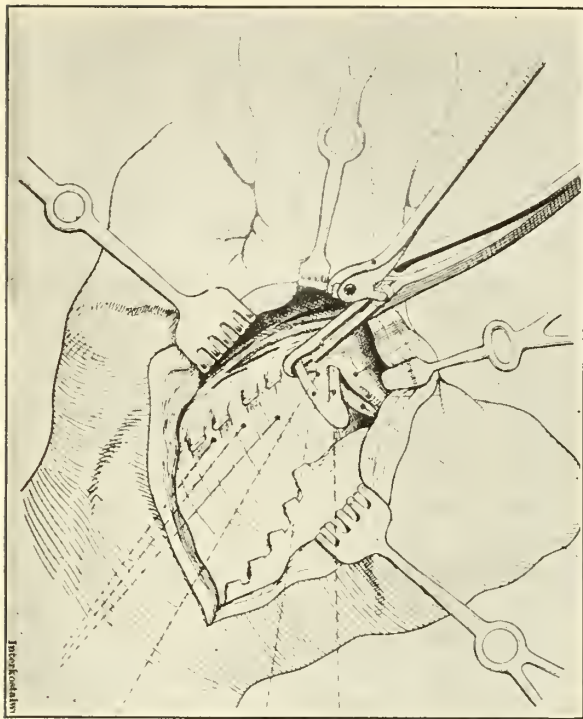


Fig. VII. After Sauerbruch. Diagram showing resection of 1st r.b. after resection of the lower ribs.

tial to wash out the excess of the anesthetic before closing the wound. In closing the wound the muscles are sutured in layers, after instituting drainage which is left in place from twenty-four to forty-eight hours.

The length of time intervening between the various stages depends entirely upon the condition of the patient. It is desirable, however, not to wait too long, because, due to regeneration of the ribs from the intact periosteum, an interference with the collapse may result. Usually the second stage may be carried out after a period of a week or ten days.

The beneficial effects obtained following a thoracoplasty in pulmonary tuberculosis are best shown in the series of 1,159 cases of advanced lesions, collected from the literature by Alexander. Of this number, 36.8 per cent were cured, 24.4 per cent were improved, giving 61.2 per cent with favorable results. Five per cent were unimproved or became worse. The immediate mortality was 1.5 per cent, with an

additional mortality after operation of 12 per cent.

Occasionally following an extra-pleural thoracoplasty, even though an apparent satisfactory collapse is obtained, the patient still continues to have symptoms, as evidenced by the continuation of the sputum and fever. Archibald has emphasized the importance of introducing iodized oil into these individuals, in order to determine the presence of existing cavitation following surgical collapse. Not infrequently the symptoms are not the result of the persistence of a tuberculous process but of a superimposed secondary infection. In these cases, distinct benefit is obtained by the repeated introduction of iodized oil into the affected cavities (Ochsner).

SUMMARY.

Surgery is indicated in certain selected cases of pulmonary tuberculosis. The surgical procedures employed may be divided into conservative and radical. The conservative procedures are largely non-destructive and consist of the production of an artificial pneumothorax and operations on the phrenic nerve. Surgical treatment is indicated in cases with unilateral tuberculous lesions, or in cases in which the infection in the contra-lateral lung is quiescent. Of the various types of pneumothorax, the selective or expansive type of pneumothorax, is preferred. Phrenemphraxis is indicated as a conservative measure in early tuberculosis, whereas phrenico-exaeresis is the operation of choice as a test procedure or in conjunction with artificial pneumothorax in the more advanced forms. It is of no value in cases in which there is a fixation of the diaphragm. Of the plastic operations the paravertebral extra-pleural thoracoplasty of Sauerbruch is the method of choice. In the chronic fibroid type of phthisis, with marked unilateral involvement, this operation, performed in stages, is of distinct benefit. In a large series of collected cases treated by thoracoplasty, an improvement was obtained in over 60 per cent.

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DISCUSSION.

Dr. Shirley Lyons (New Orleans): This subject is of tremendous importance to every medical man, and I wish to thank Dr. Ochsner for his very excellent treatise. The subject is so extensive that only the important phases can be brought out in the time allowed. I wish only to emphasize a few points concerning artificial pneumothorax.

Since this important surgical adjunct in the treatment of pneumothorax tuberculosis was brought before our profession in 1895, by Dr. John B. Murphy, it has been used in a large number of cases with very encouraging results. In the earlier days, it was reserved for the cases which were considered hopeless and only after every other known method had failed. As was to be expected of any treatment when used only in hopeless cases, the results were not brilliant, but they were sufficiently encouraging to justify some workers to try it in earlier stages of the disease. Today, many of those who have given the subject study have concluded that if there is any doubt as to the patient's progress, he should be given the benefit of immediate pneumothorax.

There can be no fixed rules guiding the indications for artificial pneumothorax, but there are several conditions which make treatment imperative: (1) Repeated and severe hemorrhage in any stage of the disease. (2) The low grade tubercu-

lous patient with persistent cavity, sputum and bacilli after prolonged treatment under suitable conditions. (3) In chronic cases with periodic relapses with disease confined to one side. (4) To replace serious or prevalent effusion in a tuberculous subject.

In the production of artificial pneumothorax we have a simple, comparatively harmless therapy, which has heretofore been used in the more hopeless cases, which offers a useful means of controlling the disease in its early stages. In properly selected cases, relief is prompt and effective. That is one nice thing about the treatment, you do not have to wonder if you are getting results; as a rule, in about the first three or four weeks the results will be such that you can tell and the patient and family can tell that you are getting the results, by the marked reduction or total absence of sputum and the pulse rate approaching or returning to normal. The dangers of pneumothorax are so slight, in the hands of an experienced operator, that they may be considered negligible. I say this, in spite of the fact that, in reviewing the literature, occasionally you will find a series of two or three or four cases in which the results are fatal, I still believe that the complications are more or less negligible. The indications and contra-indications are based to a large extent on the operator's experience and skill.

There are two other points: I do not think artificial pneumothorax ought to be introduced by the operator without consultation with another physician. I deem it of sufficient importance to warrant consultation.

One other point: Your patient and family will want to know how long this is going to have to continue. In the most favorable cases, you can promise eighteen months to three years' treatment, some longer than that, but I have never seen a case fail to continue through the treatment, when it is left to his choice.

The more complicated surgical procedures are to be considered only after a thorough trial with artificial pneumothorax.

Dr. Ochsner has covered that subject so very thoroughly that I do not think there is much left to say on that score, except that I would like to plead with you all, if you should have a case in which artificial pneumothorax has been unsuccessful and any type of surgery is advocated, don't take the attitude that your patient is going to be deformed or maimed or anything like that. The mortality is only 10 to 12 per cent, and that is not high, considering some of our other surgical procedure, and I would like to plead co-operation with the surgical man with the more or less hopeless cases.

Dr. W. J. Durel (New Orleans): Of course, I am a medical man and not a surgeon, but this is one subject wherein if the medical man does not co-operate with the surgical man, do not start any surgical procedure.

At the Charity Hospital we have had there hundreds of cases, cases of tuberculosis that warrant artificial pneumothorax—which, by the way, is a part for the medical man, not for the surgeon; pneumothorax should not be practiced by the surgeon, it belongs to the medical man. In other words, in practicing artificial pneumothorax, we have a bed plan by which, when we approach the bedside of especially an advanced case where before we simply had to fold our hands and wait and expect the final act of life, today, we can go a little further and offer this patient relief and offer him many, many years of very active life.

Now, I have been using the artificial pneumothorax for fourteen years in Charity Hospital, cases that permit us to use artificial pneumothorax. It is you gentlemen who have to lead this procedure and help us in gaining headway.

I will give you one example. Dr. Jones will remember that, during the month of December and January, I had booked twenty-eight cases for artificial pneumothorax. They asked me to wait until after New Year. I waited until the holidays were over, then we decided to have quite a clinic on artificial pneumothorax, and when the day came, there was one patient left in the hospital, the others had all deserted because the physician had told them it meant death.

I am from the South, my grandparents are from the South, but this is a fact, we of the South are backward. Gentlemen, let us be leaders. I make a plea for it. Here is an institution, the Charity Hospital, with two hundred and fifty beds, the gift of a noble woman who is trying to help humanity, and here we poor little selves are trying to help the suffering humanity, because the uneducated profession may be unwilling, worse—against us, and induce these poor deprived patients not to have it. Many patients do die, it is not pleasant for the doctor to puncture the side of an individual every ten or twelve days for three years, at least, and it is not pleasant for the patient to be punctured.

I will not discuss that any more, there is enough in the literature for you to know all about it; you cannot say there is nothing published on it; the literature is full of it, so go to it, do it yourself. When you send your patients to Charity Hospital, tell them "They are not going to murder you, there, if they want to stick a needle in your side." What is the outcome if it is not done? Death, gentlemen.

Now, as far as phrenisectomy, I have succeeded in having one of our surgeons help us out, and Dr. Ochsner was kind enough in trying this recently, with fairly good results. As far as phrenisectomy is concerned, I would advise phrenisectomy preceding phrenicotomy.

I am surprised with the cases we have had. One case was a severe case and when the diaphragm was not free, yet from this case, after phrenisectomy, there was a rise of the diaphragm and a flaccidity and positive collapse, equivalent to about 500 c.c. and this patient is doing well.

Another case was a case for phrenicotomy, but the opposite lung, if not the lateral lung was a little moist and I advised Dr. Ochsner. That is why I say, there must be a close co-operation between the physician and the surgeon, because the surgical therapeutic work is not like amputating a leg. Before you do surgery of the lung, you must know the pathology of tuberculosis, and if you do not know the pathology of tuberculosis, do not do surgery. Therefore, you go in unison, hand in hand, with your surgeon.

I will cite another case, a patient who came from the West and he wanted to be thorocoplasted immediately. I told him to ask his physician, one case where it was the rule; they telegraphed him. He had a sweetheart out West, a trained nurse, who wanted him to be thorocoplasted, but this man had one lung quite involved but the opposite lung was active. Now, what was the outcome? A beautiful surgical result but a dead patient after a few days, because after you do the thorocoplasty and collapse the lung, the other lung certainly will never be able to keep up the vital capacity of that individual. So, I advised a phrenisectomy to be done, and it was done. Just that phrenisectomy, however, came mighty near flaring up in the other lung.

Now, of course, Dr. Ochsner has been sick and not able to take the cases left for him, but I am sure Dr. Danna is coming to our rescue, and when he promises something I know I can depend on him.

This case was phrenisectomized, and after three weeks, they wanted him down in the surgical department for thorocoplasty; after the plain phrenisectomy, he had twice the volume in the lung he had previously. Meaning what? Meaning a temporary involvement, extension of volume in the phrenisectomized lung. In another month or so, this patient will be able to stand theroplasty and be a valuable asset to himself and his family again.

So I say, we need co-operation between the surgeon and the physician; we must walk hand in

hand; if you part, gentlemen, your results are going to be disastrous.

Now, another thing, let us not wait, however, for these thoracic operations to the last moment. However, this is the rule that most of the etiologists have adopted, as long as we feel that a patient can be cured or benefitted or put back in a healthy working order, without any of the surgical aid. It is a matter of three years, and I admit that the results sometimes are startling, but they are not so wonderful as we sometimes think.

Dr. Danna (New Orleans): I probably would not have said anything if Dr. Durel had not used my name in vain, but this is a subject which I would like to have the membership, individually, take home with them and ponder over. I was just sitting here thinking that there are very few of us who have had any experience with thoracoplasty. We are very anxious to do these operations, but we feel our responsibility in doing this kind of work, because it is a very serious thing and should be done only in selected cases and only with active consultation with the medical man.

Now, unfortunately, the tuberculosis patient is the patient who, on an average, speaking of the average case, treated by the average doctor, gets very little active attention and active supervision and active watching by the doctor, as to what the processes in his lung are, from time to time.

The average man, treating a "t. b" case, will put him on the usual treatment and maybe not see him for months at a time. I would like to make a plea for more active supervision of these cases, and for more study of the individual case, so that these cases requiring thoracoplasty can be selected and operated on by men having the necessary experience to be able to do it.

Dr. Durel has mentioned the fact that I was interested. I have been interested, I have seen some cases with him in the tuberculosis wards, we have decided to do something surgical for them, and, the next morning, the patients were not there, they had gone; they had gone, because of the feeling of the patients and their doctors and perhaps some of the nurses and "hangers-on," that maybe we were trying to experiment with them and do surgery on a case that required no surgery.

So, I would like to have you take home with you the idea that surgery can save a number of these patients. As Dr. Durel tells you, these are usually the patients that will die, if surgery is not done on them.

Dr. I. M. Gage (New Orleans): I would like to thank the Chairman and the Surgical Section

for the extension of time they gave me to read Dr. Ochsner's paper, and also appreciate the discussion of the paper.

I would like to corroborate the statements of Drs. Durel and Danna about the co-operation of the internists and surgeons. This applies not only to surgical tuberculosis but to all surgical cases. The surgical field in tuberculosis is a very large one but limited in its scope. In the treatment of pulmonary tuberculosis in selected cases the extrapleural thoracoplasty of Sauerbruch is probably the method of choice, as it accomplishes all that the more radical procedures offer, with practically no deformity of the chest.

In some of these cases following thoracoplasty, there is a continuation of symptoms, which Dr. Ochsner has shown to be the result of bronchiectasis, the cavities not being completely collapsed by the surgical procedure. Dr. Ochsner has demonstrated that in this type of case the therapeutic results obtained by the introduction of iodized oil is worthy of note. Therefore, in cases that continue to expectorate large amounts of sputum following the Sauerbruch extrapleural thoracoplasty, it behooves us to make a study of the bronchial tree by the introduction of iodized oil by the "passive" technic.

I thank you.

THE ACUTE ABDOMEN*.

J. M. ACKER, JR., M. D.,

ABERDEEN, MISS.

Acute abdomens are generally first seen by the family physician and it is upon his advice that the case rests. In dealing with a paper of this kind it is hardly possible to consider the subject from the standpoint of a clinical entity. In my opinion, it should rather be dealt with by determining or defining, what is an acute abdomen, what are its causative factors, and what is its treatment?

I shall not try to offer anything new or startling, but shall content myself with trying to create interest and a desire for more prompt recognition of this condition among the men of our profession. Being mostly a general practitioner with a rather limited surgical experience, I hesitate at attempting to discuss so large a subject and one of such great importance to us, and I might

add of even more vital importance to our clientele. If my ideas are wrong I shall welcome correction. It was with the hopes of eliciting a liberal discussion on an old-timeworn, but paramount, subject, that I reluctantly accepted the invitation of the surgical section's Chairman to present a paper on the acute abdomen.

What is an acute abdomen? It is an abdomen in which something has happened. Something gone wrong and the pathology within is dependent on a lesion or lesions that need immediate attention. Some great medical and surgical authority has termed it "an urgent abdominal condition." An abdominal calamity, if you please, has befallen the patient and something must be done at once. The correct mode of procedure should be clear in every doctor's mind. No time must be lost in starting our defense. I am of the belief that in spite of the suddenness of the onset of an acute abdomen, that in most instances, they are sudden terminations of chronic abdominal lesions. Of course, there may be exceptions. Preventive surgical remedies for abdominal calamities have not kept pace with preventive medicine. This is well illustrated by the many deaths from the perforated appendix preceding the fatal peritonitis. Urgent abdominal conditions have to do almost entirely with perforated lesions, either visual or occult. These perforated lesions are the commoner abdominal calamities that deserve our deepest consideration. They are the ones that in the majority of instances are causing the acute abdomens. I believe all patients with acute appendices should be considered as having acute abdomens for certainly in the majority of cases unless the appendix is removed the patient will sooner or later develop an acute or urgent condition. Therefore, with the mere mention of the acute appendix and also cholecystitis as causes of the acute abdomen, with of course an earnest appeal for the early recognition of both, this paper will be directed more especially towards a discussion of the pathologically perforated lesions as the cause of the acute abdomen.

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

Why after an examination of what we think is an acute abdomen, is it imperative that the abdomen be opened? The answer to this question is simply the recitation or enumeration of the lesions or conditions that cause an acute abdomen, in other words, the causative factors of the trouble. Classified according to the frequency of the lesions producing an acute abdomen, appendicitis comes first. Any classification of the most frequent causes must start with this pathology. That was mentioned in the preceding paragraph. Then, in the opinion of the essayist, come the following conditions: (2) cholecystitis, (3) perforation of the appendix with accompanying peritonitis, (4) perforations of duodenal or gastric ulcer, (5) rupture or leakage of pus tubes or ovarian cyst, (6) acute intestinal obstruction, (7) rupture of ectopic pregnancy, (8) perforation of gall-bladder, and (9) acute pancreatic lesions. We are all agreed that conditions such as these need attention. There is no medical treatment. What must be done is essentially and entirely surgical and no time should be lost in seeing that these measures are instituted. Acute perforation of the appendix, unassociated with a cathartic, in my opinion rarely occurs. Of course, there are exceptions to this statement. As mentioned before my observation has been that acute perforation of any viscus is only a more or less rapid termination of a chronic lesion. The rapid pouring out of intestinal or appendiceal irritating and infecting fluids will cause an early and unyielding rigidity of a diffuse area of the abdominal walls. Such areas of rigidity, if the patient is not completely overcome later, is more locally confined to the right side. Such localization in the urgent or acute abdomen should never be waited for. Simply pain with rigidity of the abdominal walls is always a command for the closest investigation and in the majority of cases is ground for an immediate laparotomy. Little attention may be paid to the temperature which may be even subnormal and often is when perforation is first seen.

The temperature, with nausea and vomiting, however, will play an important part in the differentiating between this condition and the pneumonias, kidney colics or menstrual disturbances. Acute pneumonia and pyelitis have many times been mistaken for the acute abdomen. In obtaining a history of an acute abdomen, one should never fail to bring out the history of any cathartic which a great many times has been given. We might generally say that with the pain and rigidity as mentioned above, added to the history of a previous cathartic, it should always be imperative to open the abdomen. I am of the opinion that the advances made in laboratory diagnostic measures avail one little in the handling of an acute abdomen. To submit a patient with acute abdominal symptoms to a gastro-intestinal roentgenogram is unthinkable. A good many inflamed appendices have burst while the doctor was waiting for the leukocytes to rise and consequently announce to his patient that surgery was indicated. A urinary examination can and should of course always be made. The old diagnostic triad, pulse, temperature and respiration, together with the abdominal pain and muscular rigidity are to be relied upon more than all diagnostic refinements in your acute abdominal cases.

It should be remembered that practically in all acute perforations or rupture of abdominal organ, symptoms of bowel obstruction are present. The peritoneal irritation incident to any perforation is manifested as a paresis of the intestinal canal.

Acute perforation of the duodenum and stomach are dire abdominal calamities and produce a most urgent acute abdomen. In this condition there is intense pain, the patient seems consumed with fright. He or she is held in immovable position, terror is on the face and there is an appeal for gentleness in examination. The picture is more intense than that in the perforated appendix. The pain, rigidity and tenderness are found to the superlative degree. The breathing is superficial and often

there is cyanosis. The rigidity is wide spread, universal and board like. There is no region of the abdominal wall that will yield to pressure. Again, it is evident that the only relief for a condition like this is surgery.

Peritonitis following the leakage of a pus tube or an acute rupture of an old pyosalpinx or ovarian abscess is frequently the cause of an acute abdomen. A great deal of shock is attached to the rupture of a large tubo-ovarian abscess, so much so that the patient for the time being is not so much ill from the peritonitis as she is from the shock incident to the intra-abdominal catastrophe. Here, I think it a good time to mention the problem that always faces us in the examination of these acute abdomens, of determining where in the abdomen the lesion is located. I believe that the operator should know as far as it is possible, the definite location of the intra-abdominal lesion, and should know where to make a legitimate incision in order to combat such lesion. In reckoning with an acute abdomen the ovarian cyst with a twisted pedicle must be kept in mind.

Any patient suddenly seized with acute abdominal symptoms in the presence of an abdominal scar, evidence of a previous operation, should arouse suspicion. Of course we have serious trouble of this nature without any history of a previous operation or scar, where the patient shows only sudden pain and constipation. With or without a scar, the patient should receive our closest watchfulness for intestinal obstruction should be suspected. Delayed operation in this condition means death no matter what is the cause. If you wait for fecal vomiting, distended abdomen and high blood count, operation may be too late. I do not consider blood count as of very much value. The chief symptoms are sudden severe pain with localized tenderness, nausea and vomiting.

A word about ruptured ectopic pregnancy. The most interesting thing about

this condition is the difference in the management of it. The chief trouble or immediate danger is the hemorrhage. Of course this hemorrhage must be controlled. It may be too late to wait for a reaction from the shock. This condition always shows an extreme picture of collapse. The patient is blanched, often unconscious and quite oblivious to her surroundings. Generally, however, we can secure some clinical history from some one that will aid in a correct prompt diagnosis. We often see the most extreme picture of shock, the patient being both pulseless and unconscious. However, when the correct surgery is applied, better results are obtained, than in most any other similar alarming condition.

Acute perforation of the gall-bladder is not apt to take place and more or less substitutes the symptoms of empyema of the gall-bladder or abscess in the peri-gall-bladder region. We are more often dealing with a local abscess incident to the ruptured gall-bladder than with a frank perforation of the organs. In these perforations, pulse and temperature are not confirming evidences. Pain in the gall-bladder region with well-marked rigidity of the upper right rectus with previous clinical gall-bladder history is about all we have for diagnosing these conditions.

In the acute pancreatic lesions we find sudden intolerable pain of paroxysmal character, localized in the epigastrium but sometimes referred to the left shoulder. This is followed by symptoms of shock in varying degree. Vomiting is a prominent symptom and is generally persistent and uncontrollable, but never regurgitant or fecal. Respiration is hurried, shallow and thoracic. There is a leaden color to the face with cyanosis. Abdominal tenderness, rigidity and distension are not features of the disease in the early hours. With extreme symptoms, the diagnosis has been made, but more often has the abdomen been opened suspecting perforated ulcer or gall-bladder. This condition may be recognized from the perforated lesions, by

causing less tenderness, spasticity and distension, by more copious and persistent vomiting and by paroxysmal exacerbations of pain remaining most intense. There may be some board like abdominal rigidity but it is always confined to the epigastrium, while the agonizing pain is also located in the upper abdomen.

How to proceed, what to do and what not to do, in these acute abdominal cases, are questions the answers to which are pretty generally agreed upon. The mortality in the acute abdomen increases rapidly after the first six hours. Each additional six hours adds an increasing failure for surgery. It was the late Dr. John P. Murphy who said, "Somebody has been to blame for every death from acute peritonitis." Early radical treatment in these conditions is conservative treatment, and no treatment other than surgical is radical. There is only one thing more important, and that is prevention. The family physician is the preventive agent, the surgeon or surgery the specific treatment. The treatment of the acute abdomen starts with the early recognition. Therapeutically nothing whatever can be done. Early surgery is our salvation.

I shall not attempt to cover the operative procedure in these cases, but will content myself with insisting upon immediate opening of the abdomen, removal of the appendix, appendiceal stump, closure of the perforation or correction of any other pathology found. Adequate drainage by means of drains and the patient's position in bed. Volumes could and have been written along these lines. I can add nothing. However, I cannot close my paper without stressing both pre-operative and post-operative measures as being of the greatest importance. I know of nothing of more importance. These measures look towards conserving the patient's strength and energy by preventing and combating shock. The profession has for years been searching for some preparation that could be introduced directly into the circulation

without harm to the patient and that would act as a food, prevent dehydration, combat toxemia and aid in elimination. The goal was reached, I think, by the use of a 5 per cent solution of glucose given intravenously and continually at the rate of about 100 c.c. per hour, just as long, and as often, as necessary. In my humble opinion, this measure used both pre- and post-operatively has done more for these acute abdomens than anything, with, of course, the exception of the early recognition and immediate operation. Patients that are septic, starving for water, so nauseated they can not retain fluids by mouth, gradually come back under this intravenous medication. This measure ranks next in importance to ridding the patient of the causative factors by operation.

Perhaps this discussion of a condition that has been gone over so much and to such an extent is tiresome to most of you. I apologize for taking your time. However, if my efforts have been successful in adding but a small stimulus to prevention, and then early diagnosis, with prompt action in these cases where delay means such tragic fatality, I shall not consider that my paper has been in vain.

DISCUSSION.

Dr. J. A. Crisler (Memphis): Not much can be said in five minutes on so valuable a paper. I think the time has come when we might stop throwing bouquets, but surely this is the best paper I ever heard on the acute abdomen. Your chairman has been kind enough to call on me on several occasions to discuss papers. I used to discuss them all twenty-five years ago when I was a member of this Association, but now these young fellows have gotten smarter than we old fellows. We know a lot by experience that they probably don't know, but they know more of the recent things that are as important as matters of experience, so we might say too much and get lost, get an anchor around our neck and get out into the sea and drop quietly over.

I was impressed by the importance of early diagnosis. The doctor has so completely covered that feature of the case until nothing further could be said, except that in some cases early diagnosis is probably impossible and the abdo-

men would have to be opened regardless of the diagnosis just for general purposes. Some of these later symptoms that he mentions are not symptoms of disease, but symptoms of death—signs of death—so that early opening of the abdomen in acute abdomen is never out of place.

I call your attention to two cases that I saw, difficult of diagnosis, in our clinic. One was referred to me, to make it brief, with an acute fulminating appendicitis. Let us pass over by saying that the blood count and everything else indicated that—the pain was localized over the appendix—the man was tremendously sick with acute symptoms that occurred 24 hours before we saw the patient. We went in, confirming the diagnosis in our own mind, as acute appendicitis. We ran into an enormous clot of blood, and I almost looked up to see if I was operating on a woman, instead of a man, with an acute ruptured uterus. The next thing we encountered was pus, which saved us from the necessity of going on into the duodenum and stomach. We were rather anticipating an ulcer, but **passing my hand up** I ran into an enormous liver abscess, and we drained that and the man got well.

Another case the patient was brought in with this symptom; he had gotten up at 4 o'clock in the morning and gone to his doctor some four miles distant and had had a hypodermic for pain in his left side, rigidity down his left ureter into the testicle. The doctor said he thought he had a renal calculus. In six or eight hours he developed a similar pain on the opposite side, and another physician was called, and he diagnosed it as acute appendicitis. The patient was brought to us with that history. We were utterly unable to locate any place in which an incision could be intelligently made. One physician rather urged the idea that it was an acute appendicitis, because of the blood indication and inflammation, so we delayed it one day, two days, on up to six days, and finally we got back to his old diagnosis. Our genito-urinary man made all sorts of investigations of the ureters and kidneys; he had no trouble there, so we finally went in, because he was a little tender on the left side, and we ran into three separate and large abscesses, probably due to rupture in the descending colon and sigmoid. Sometimes accurate diagnosis is utterly impossible, no matter what you know about your blood and your history and what your experience has taught you. Sometimes the diagnosis is thoroughly impossible and we have to think of that, but the safe thing is whenever you have anything like sufficient symptoms to warrant you to go in for them, go in as early as possible.

Dr. V. B. Philpot (Houston): I just want to bring out one point in the diagnosis. Of course, as Dr. Crisler said, we very often can not make an accurate diagnosis, but there is one condition in which we strive to eliminate, and that is intestinal colic which is the one condition where any kind of purgative is indicated, and I doubt whether extra lavage wouldn't do just as well—an enema. Pressure on the abdomen in intestinal colic generally relieves the pain, whereas in most of the acute conditions it aggravates the pain. All of us have to deal with patients who have had purgation given for this purpose, and possibly they have an acute condition. If doctors would just think of that they might refrain from purgatives and therefore eliminate a good many deaths, because I believe purgatives do kill more people in acute abdominal conditions than anything else. I believe I would rather risk my chances without my operation in acute appendicitis any day, than to have purgation and have an operation.

Dr. W. H. Frizell (Brookhaven): Dr. Acker referred to the acute abdomen in making an early diagnosis. Sometimes we can not make an early diagnosis. Recently I had a case, a negro woman, 38 years old, who had repeated attacks of appendicitis. She had a chronic case with acute exacerbation. Later on she had had a very acute attack. She got up and I told her that sooner or later she would have to come to the table, and why not now? She objected to that. She was on the plantation, and on Sunday she had an attack. She knew it meant the knife, so she was a little bit loathe in saying anything about it, and finally I was called in any way on the third day. She had taken violent purgatives in an effort to remove her trouble. I had her brought in, urinalysis made, pulse rate and everything else that you can find; her bowels were moving along; she had no nausea; she suffered very little pain, temperature from 99° to 100°, so we put her in for operation and in three more days went into her abdomen with a diagnosis of chronic appendicitis plus I didn't know what. When we got in there, she had a movable tumor from McBurney's point going up in an inverted J and from within the abdomen you could move it about any way you wanted to. I went in there and I found an agglutinated mass of intussusception between ten and twelve inches long. In my system of raising this up, I opened her bowels about four inches and we looked down in there, and there was a gangrenous bag, and another mass half as large. I knew that she was headed for the undertaker. I closed the appendix, pulled the omentum down and fastened it down and closed the wound with two soft drainage tubes in it. On the second

day I removed the drainage tubes. That negro today is as well as any of you are, with a perfectly soft abdomen, and was in my office the other day. She has been out of the hospital some time and she came in and said: "Doctor what can I eat?" It just goes to show how in the abdomen you can not find out anything about them. As Dr. Crisler wisely said, go in and see.

Dr. G. C. Hightower (Hattiesburg): Dr. Acker has covered the disease. I want to speak just a word about how to manage the patient—how to avoid any pitfalls that I used to fall into, but I seldom do now. All of us agree that the diagnosis in every case can not be made. All of us agree on that. We are sure of that. The question then arises how we are going to manage the patient. If you have made a very accurate diagnosis, blood tests, etc., and you come to the conclusion in your own mind that the most likely thing there is an acute appendicitis, well, one of the pitfalls we fall in is this: you say "you have got an acute appendicitis, you have to be operated on at once, if you don't you will die in six days." You forget that the patient is likely to refuse to be operated on, and sometimes they do, and on the sixth day they are well and up again. Then on the other hand, if you tell that patient that you do not know positively but think he has acute appendicitis, and in this case you rush that patient into the operating room and open him up and do not find any appendicitis, and he says, "Doctor, what did you find?"—you will have a hard time explaining, so how to avoid these pitfalls is my subject.

When you have made every differentiation and you can not make a positive diagnosis, tell that patient the truth; say, "I do not know what is the matter with you, but my opinion is so and so, and I advise you to have an exploratory operation. I won't take the responsibility if you wait, but I will be glad to go into the abdomen and see what your trouble is and remove it whatever it is," and in that way you will avoid some very bad pitfalls.

Dr. R. B. Caldwell (Baldwyn): We knew when Dr. Acker got up to read the paper that we had a most valuable paper coming, but he stresses a point or two that I think very important. There are so many of these acute abdomens that it is a great factor in our profession. You have to get busy and get busy in a hurry. You haven't time for routine laboratory work. When your diagnosis is as accurate as you think you can possibly make one, get busy. When you have an abnormal case you have to use every means you have, but I think we are getting too far away from our objective and subjective symptoms and are taking too much liberty.

I saw a case of obstructed bowels carried to the hospital recently that had been obstructed 24 hours. He had the most pronounced symptoms I ever saw of obstructed bowels and pus appendicitis. They gave every test to find out where the obstruction was and wasted valuable time in making those tests; then they opened him up and found a gangrenous bowel, and the patient died the next day. Those preliminary examinations and blood counts and roentgenograms possibly caused that patient's life; otherwise any person who had any knowledge of an acute abdomen could easily have made a diagnosis of obstructed bowels. In other words the family physician sent the patient to be operated on immediately; he reached the hospital at 9 o'clock in the morning and was operated on at 8:30 that night and died the next day. When you have your objective and subjective symptoms so plain, do not let time be a factor in going into the abdomen, in order to have those different laboratory tests that you know are not going to avail you much.

Dr. J. M. Acker (closing): I thank the doctors for their discussion, particularly Dr. Crisler and Dr. Caldwell for their comments on the paper.

ACUTE OSTEOMYELITIS.*

H. A. GAMBLE, M. D.,

MERIDIAN, MISS.

Acute osteomyelitis is the most common and important acute inflammatory disease of bone, and has been recognized as a distinct clinical entity since the dawn of surgery.

My reason for taking this subject for discussion is that the consequences, both as regards the bone itself and the general system, are so disastrous if not recognized early, that one feels that the subject should be brought before our medical meetings from time to time.

Notwithstanding the voluminous literature of the past and the general recognition of the possibility of the condition developing, it is a fact that a large proportion of such cases are not recognized as acute osteomyelitis until serious damage has been accomplished.

*Read before the Mississippi State Medical Association, Meridian, Miss., May 8-10, 1928.

Anatomically, osteomyelitis is usually confined to the diaphysis of the bone. The reason for this is obvious when one considers the etiology and pathological anatomy present. While age, disease and trauma are contributing factors, etiologically osteomyelitis either develops as a result of the direct introduction of bacteria by some traumatizing agent, such for instance as a bone felon resulting from a pin or needle prick, the soiling of a compound fracture, or a bullet wound. The infections resulting from these are usually limited in their extent, and are not in general in the class which we wish to discuss.

Osteomyelitis as clinically seen, except from the above causes, is a result of a blood borne infection, and may or may not have some predisposing elements such as trauma, mechanical or chemical, or of some constitutional dyscrasia.

Anatomically, Lexer has shown that the shaft of the bone receives its blood supply from the nutrient artery, which in turn divides into a number of terminal arteries, and from the arteries of the periosteum. The epiphysis of the bone receives its blood supply from an entirely different source—the blood vessels of the epiphyseal area. Between the epiphysis and the diaphysis there lies an area in which the blood supply is very limited.

In the natural pathogenesis of acute osteomyelitis the introduction of the infective organism is by way of the blood stream, either as separate germs or as thrombi, which on account of the terminal character of the vessels becomes localized more often in the blood vessels of the bone on the diaphyseal side of the epiphysis and form a thrombus, with the further multiplication of the bacteria, clotting of blood and destruction of the surrounding bony tissue. This thrombotic process varies in extent—first, as to whether there is a tendency for continued spreading of it; secondly, the part of the nutrient blood vessel supply which is involved; thirdly,

the virulence of the infective organism, and, fourthly, the coincident infection of any inflammatory exudate, and reaction on the part of the tissues. Unfortunately, if the nutrient artery becomes thrombosed shortly after entrance into the bone, which is not the usual course of the disease, the whole diaphysis will probably be affected and there will be massive destruction of bone tissue. Should there be one of the smaller branches only involved the destructive infection will be very much lessened. Fortunately, the vascularization of the periosteum is of such a nature that no embolic or thrombotic process of its vessel can effect to any large extent the surfaces of the bone; so that, even in the most marked involvement, there usually remains an opportunity for repair of the destroyed bone by way of the bone cells which are adherent to the periosteum.

From a clinical standpoint practically all cases of acute osteomyelitis originate because of a bacteremia which sets up a thrombo-embolic process involving the blood supply of the bone. Practically the same pathological picture is presented excepting in a lesser degree, in what is known as acute epiphysitis, which is to all intents and purposes an acute osteomyelitis. The pathological process resulting originates in the bone with the development of destruction of osseous tissue, formation of pus, the gradual spreading of the process to the surface where there results a subperiosteal abscess. This destructive process may spread up into the shaft of the bone involving the marrow and occasionally into the epiphysis rupturing into the joint, or where Nature is unable to combat the infection, becomes a localized abscess.

Predisposing causes of acute osteomyelitis: First, it is usually found in the adolescent rather than those of mature years, due no doubt to the marked vascularity of the growing bone, particularly in the regions of the epiphysis; second, the history of trauma is so often associated

with its development that there can be no doubt that it is a factor in lowering the resistance of the affected part to infection; third, it is far more prevalent in the male than in the female, the latter not being so prone to injuries as the former; fourth, devitalizing diseases which lower one's resistance are a frequent predisposing factor. However much influence any one of these factors may have as predisposing toward the development of an acute osteomyelitis, there is always present a pre-existing focus of infection with a bacteremia. Frequently the focus of infection is evident, as for instance the furuncle, inflamed tonsils or infected lesions of any part of the body. However, while there are times when such a history is not available, it will usually be found upon close investigation that some atrium of infection existed whether or not it can be demonstrated.

The blood picture in the early stages of any acute osteomyelitis shows the presence of a blood stream infection. To summarize: for the development of an acute osteomyelitis, it is necessary that there should be some point of fixation in the bone, and the presence in the blood of either a bacteremia or infected emboli, which finds lodgment in the point of fixation.

The symptoms of osteomyelitis are variable in intensity. There is not always a clearcut picture upon which so much stress is laid—of unbearable pain, fever, and high blood count, although in many cases we do find such a fulminating type of invasion. When one takes into consideration the fact that the constitutional symptoms will vary largely as to the intensity of the bacteremia that is present, and the local symptoms as to the extent of the vascular supply involved, naturally there will be a decided difference in degree as regards the symptoms of pain, fever and blood count.

Some cases of osteomyelitis are very mild in their onset and run a low grade chronic course, due no doubt to the lack of

virulence of the infective organism, the limited area of bone involvement, and the ability of the host to throw off or fight the infection. Other cases will show more marked symptoms, being ushered in with chill or rigor, high fever, pain and tenderness, high blood count and a marked bacteremia. There is a further type in which the bacteremia is the most important of the conditions present, the patient showing very mild evidence of focal infection with a high grade toxemia due to the number of circulating organisms in the blood; resulting in a severely toxic condition either typhoidal or maniacal in character, and usually terminating in death. In such cases the focal infection in the bone has very little if anything to do with the ultimate outcome of the case. Clinically the symptoms most to be relied upon are rigor or chill, fever, localized soreness or pain, a high leukocyte count with the presence in a large proportion of cases of a definite focal infection.

The prognosis as to life, morbidity and the restoration of function depends largely upon the early recognition of the condition and the time of active interference. One of the best criteria upon which to base a prognosis as to life is the extent of the bacteremia as indicated by the number of colonies in the blood culture, and as to whether or not it is persistent in its character. When there is a small number of colonies it usually indicates that the resisting powers of the individual are able to combat the infection. When the number is very large and persistent it is indicative of the lack of ability on the part of the host to throw off the infection and to clear the blood stream.

The time element is most important, upon it depends in large measure, not only the prognosis as to life, but the extent of damage which is inflicted upon the affected bone.

Diagnosis ordinarily rests between acute articular rheumatism, typhoid fever, and

in the fulminating type, the possibility of a meningitis.

Acute articular rheumatism is the one disease with which it is most often confounded, but if one will remember that in this affection more than one joint ordinarily is involved, osteomyelitis usually has a single focus of infection, that in rheumatism the pain is of a dull aching character and is confined to the joint and peri-articular structures, while in osteomyelitis the pain is of a throbbing, lancinating and often unbearable type, and is localized away from the joint in the diaphysis of the bone near the epiphysis; also that in rheumatism there is not necessarily present a leukocytosis, that in osteomyelitis it is rarely absent, it will not be difficult to differentiate between the two.

Typhoid fever has a low leukocyte count, osteomyelitis a high count. Typhoid fever a positive Widal, in osteomyelitis the Widal reaction is negative unless the patient has either had an attack of typhoid fever, or been vaccinated against it.

In those cases simulating meningitis, the delirium and meningeal symptoms present may mislead us; however a spinal puncture will clear up the diagnosis here.

TREATMENT.

I can do no better than to quote George A. Peters. He says: "There is no surgical disease in childhood in which well-considered promptness and well-controlled courage in regard to treatment are more urgently required or more signally rewarded than in acute osteomyelitis. The disease is one entirely beyond the reach of ordinary medicinal remedies, whether internally administered, externally applied, or hypodermically injected, as in the case of antitoxic serums."

The treatment of acute osteomyelitis in its early stages consists primarily upon the institution of free drainage. As previously stated, acute osteomyelitis manifests itself as an inflammation of the medulla of the bone, with or without the presence of a

subperiosteal abscess. I wish to make myself clear; in speaking of the medulla of the bone, I am referring not only to the marrow containing cavity, but the cancellous bony tissue directly continuous therewith. It is necessary when providing drainage, not only to be satisfied with opening up a sub-periosteal abscess, but in addition thereto to make an opening directly into the subjacent bone. From year to year we have become more and more convinced that the subperiosteal abscess is not the original focus of infection, but that in most cases it is secondary to a suppurative focus, at some point in the diaphysis of the bone.

LeJars very rightly says that "There are two foci of infection in these cases of osteomyelitis. The periosteal peri-epiphyseal focus, and the medullary intra-osteal focus. It is absolutely necessary to open both foci, and the operation for osteomyelitis consists essentially in opening the affected bone."

When the periosteal abscess is opened, regardless of whether or not the bone appears smooth, it is wisest, and by far the safest to make an opening directly into the medulla and provide drainage for what experience has taught us is always present—an intra-medullary infection. The treatment of the bone in cases of acute osteomyelitis in the early stages should be simply the introduction of the trephine into the medulla, the relieving of tension, and provision of drainage by this means. If necessary, this opening can be enlarged with mallet and chisel or with Rongeur forceps, but the simple trephining of the bone will usually suffice, and oftentimes abort any further extension of the osteomyelitic process. At this time under no circumstances should there be a curettment of the medulla, first because of the danger of infection, and flooding of the system with a more intense bacteremia; second, because it is impossible at this stage to determine which tissues are viable and which are not, and, third, because it would necessarily de-

stroy many of the endosteal cells upon which the repair of bone largely depends.

Bone differs from all other tissues in that regeneration takes place from the endosteal as well as the periosteal tissues. If the measures adopted do not remove the marrow and all of the medullary cells are not killed by the infection, Nature will soon set up repairs, and will oftentimes practically restore the affected bone to a normal condition.

Should there be no early intervention, and the system of the patient is able to weather the storm of the disease, we have the development of the sub-periosteal abscess, the formation of sequestra, fistulous tracts, and cloaca. When the condition has gone on to this stage it will usually mean that there will necessarily be a very protracted convalescence. The size and shape of the sequestra is dependent definitely upon the vascular area primarily affected. As this bone dies Nature attempts to throw up reparative processes both from within and from without, and we have as a result the sequestrum surrounded by a shell of new bone developed from the osseous cells of the periosteum plus new bone from the endosteal cells, with here and there cloaca and sinuses leading to the surface, through which are discharged the pus and necrotic bone material.

Should the preliminary drainage not prevent the development of a sequestrum, it is in our opinion wisest to wait patiently for from eight to sixteen weeks, giving Nature ample time for delimiting definitely the area of necrotic bone. Then open up the affected area, unroof the bone the full length of the disease, and remove with as little damage to new bone formation as possible any sequestra which may have formed. Further treatment of this condition depends upon how far advanced repair has progressed. Our preference is to remove the sequestra and all obviously devitalized tissue, and if the wound is of recent origin to pack it with iodoform gauze, sat-

urated with vaseline, which can be left *in situ* for several days.

We have recently been trying out packing these bone cavities with iodoform gauze impregnated with vaseline, and allowing Nature gradually to extrude the gauze as granulations fill up the cavity. However, we will not enter into a discussion of this phase of the subject, as our object today has been to present to you again the very important topic of acute osteomyelitis.

SUMMARY.

1. Acute osteomyelitis is due to an infection of the bone by pyogenic organisms, carried thereto in the blood stream.

2. The area involved in the bone is dependent upon the interference with the blood supply of such region by a thromboembolic process which contains the offending bacteria.

3. Practically all blood borne infections develop in the medullary cavity and affect the periosteal and sub-periosteal areas secondarily.

4. In all cases of acute osteomyelitis there are two factors to be considered, one the lesion in the bone, and the other the bacteremia.

5. The extent of the bacteremia is of decided prognostic aid.

6. In the treatment of acute osteomyelitis, it is a disease which brooks no delay, and necessitates early active intervention.

7. In the earliest stages the indications are to provide free drainage in the soft parts and sub-periosteal area, and to make an opening directly into the medulla of the bone.

8. In the treatment of subacute or more chronic cases the bone should be unroofed and any sequestra or dead bone removed, and under no circumstances should the endosteum be curetted.

DISCUSSION.

Dr. Gessner (New Orleans): It is a great pleasure to discuss a paper read by my old friend, Dr.

Gamble, for whom I have had a high degree of respect ever since I knew him as a student in medical college. There are certain things that are taught very positively and dogmatically, which I think sometimes positively do harm, and I am going to state a case which I saw recently, showing variation from the positive course usually outlined.

I saw last fall a little boy 12 years old, a school boy, who on a certain Wednesday got his last dose of anti-typhoid vaccine. On that day playing around with his fellow students, he got hurt about the leg. Next day, Thursday, he was sick, but went to school. On Friday he stayed at home, he was sick at home, complained of various joints until the following Tuesday. That was six days after his original injury. On that day he was brought to Touro Infirmary in New Orleans, where he was placed under the care of an able, experienced pediatricist, who made a diagnosis of acute rheumatism and treated him with hot applications for a week. At the end of that week an abscess over his left tibia was located, and I saw him on Wednesday, and operated on him on Thursday. Now here is the thing that is completely at variance with the usual dogmatic rule. He was struck simultaneously in four places, the lower end of each femur and lower end of each tibia. Dr. Gamble has said that where one bone is struck, and the fact that only one bone is struck is looked upon as evidence of osteo-myelitis. If more than one bone is struck you have a diagnosis of rheumatism. This boy was struck along both femur and both tibia. Incidentally a picture had been taken which was negative. You all know, of course, that an early osteo-myelitis can not be recognized by an X-ray. Dr. Henderson is our roentgenologist at Touro; he came from Jackson, and when called on to make a diagnosis of osteo-myelitis with roentgen-ray he always declines. It must be remembered that an early diagnosis of osteo-myelitis by a roentgen-ray is not to be expected. I do not think the general practitioner thinks of that as he should. I cut down in this case over each femur and over the two tibia to where the abscess over the left femur had broken, with a chisel, and I found pus. There was a large abscess over each femur and after I opened the abscesses I did what Dr. Gamble has discussed, in the presence of pus with a bone not looking well, I opened the marrow of the femur. I opened it with a Hudson drill and I made an opening one-half of an inch in diameter. I found no pus. Here is another fallacy. Dr. Jno. B. Murphy, to whom we owe a great deal, said that when a man made a diagnosis of acute osteo-myelitis, all he had to do was to

go to a hardware store and get a drill, sterilize it and bore a hole in the bone; in other words he made an impression that if you make a small hole you can go in there and the disease would not spread. In this case, although I did open the marrow of the bone there was no pus; although I made a large hole the disease did not stop. It spread and caused considerable damage to the bone. This boy has been operated on since and is now on the way to recovery. In the first place I want to stress that the multiplicity of attack does not exclude osteo-myelitis, although the syllabus of the attack only points in that direction. In the second place, we must not depend on the roentgen-ray, and in the third place, we must not sit down and think that a hole, even a big hole in that marrow, is going to prevent the spread of the disease.

Dr. H. A. Gamble (closing): I appreciate Dr. Gessner's discussion of this paper more than he can realize. Dr. Gessner used to be my teacher though he doesn't look it, and there are a great many things I have learned from his instruction. I am glad that Dr. Gessner brought out the point about the multiplicity of lesions resulting from osteomyelitis, and the possibility of there being more than one focus of infection. It isn't usually the case. You usually have a single focus of infection. The point he brought out in regard to trephining and not finding pus—I have done that and at the same time I have taken cultures from that opening and I have gotten a pure staphylococcal growth. That means that the infection had not reached the stage of pus formation. Another thing is the type of multiple openings for drainage purposes. For instance, opening the bone and cleaning it out is not advisable because of the danger of disseminating infection, and, secondly, if there has progressed a marked destruction of the bone it signifies that primarily the main nutrient artery is involved in the thrombotic process and that the tissue supplied by it will die. All that one can do under such circumstances is to make an opening to relieve tension and afford an outlet for any pus that might form later.

In regard to the use of the roentgen-ray in diagnosis of acute osteo-myelitis, I did not mention it, it has no place. It does more harm in the diagnosis of acute osteo-myelitis than any other procedure of which I am cognizant. It causes procrastination, and the essential fact which I have tried to bring out today is that acute osteo-myelitis should be recognized early, and in the treatment of it is necessary to act, and to act promptly.

SURGICAL TREATMENT OF ARTHRITIS.

JOHN T. O'FERRALL, M. D.,

NEW ORLEANS.

Despite long years of study, including much careful research, the treatment and cure of many cases of arthritis remains a baffling and interesting study. It is not proposed, at this time, to present an exhaustive treatise upon the diagnosis and treatment of the several types of arthritis, but to call to your attention some of the important clinical manifestations of both acute and chronic involvement of the major joints and the beneficial results obtained from the surgical treatment of them.

Acute infectious toxic and septic arthritis is generally manifested in a single major joint, principally the knee, shoulder, hip or elbow. Its onset is sudden, accompanied with more or less temperature, acute pain in the joint, especially upon attempted motion, increased local heat and swelling. Local redness may or may not be present. The history obtained from the patient often reveals the presence of, or the recent occurrence of, a sore throat, an active gonorrhea or an abscessed tooth. With such symptoms, whether backed up with such a history or not, we are conscious that we are dealing with an acute inflammatory joint lesion. The simpler laboratory examinations are now possible in the most remote localities; hence, a total and differential white blood count will reveal an increased leukocytosis and an increase in the polynuclear neutrophils.

With these laboratory findings further substantiating a diagnosis of an acute joint, the next diagnostic step undoubtedly is aspiration of the joint. It is unfortunately a fact that many medical men hesitate to perform this simple, but important, diagnostic operation and lose valuable time as well as the confidence of his patient, in some

instances. With a 10 c.c. or 20 c.c. glass syringe, with a needle of large caliber and novocain or ethyl chloride, aspiration is simple, painless and harmless as applied to joints. If upon aspiration the joint fluid is found to be cloudy, from a slight degree to markedly turbulent, it will show numerous pus cells under the microscope, with or without micro-organisms. Such turbulence is the sign of destruction of the delicate synovial membranes, and demands surgical drainage of the affected joint.

It is a distressing fact that many of our medical men of the regular school, osteopaths, chiropractors and other ignorant persons have spread among the laity the misinformation that the opening of any joint and releasing of the synovial fluid will surely result in a stiff joint. Much of this misunderstanding has resulted from aspiration and immediate indiscriminate injection of formalin and other fluids into the joints.

What is meant by surgical drainage of a joint? It means complete evacuation of the infected synovial fluid by means of a free incision into the joint to reach every culdesac and thorough lavage of every part of the joint capsule with 1 or 2 gallons of warm normal saline solution or a solution of bichloride of mercury 1-20000. Drainage tubes or drains of any kind are distinctly contraindicated even in the most purulent infections. Complete resuturing of the incision is done immediately or the capsule is stitched to the soft parts and the joint allowed to drain as per the method of Willems. Except in the most purulent cases, immediate and complete suture of the incision should be done. Extension to the affected extremity is then applied and both active and passive motion begun in 3 or 4 days. Normal, functioning joints are obtained in cases seen up to 1 week after the onset of the joint infection.

The following resumé of a recent case will illustrate the progress of an acutely infected knee joint:

George K., an unusually healthy, strong young man, was seen March 22, 1927, at his business office. He stated that he had had no infectious disease of any kind for years. He had never had gonorrhea and his teeth and throat had not been affected. The night preceding my examination he had awakened during the night and felt some stiffness of his left knee. Upon changing his position in bed he again fell asleep. When he arose the day of the examination he again felt some stiffness and discomfort of the knee but walked more than 20 blocks to his office. This long walk was performed with ease except that he stopped once because of slight pain in the joint. After walking upstairs the joint began to give more pain, which rapidly increased until within an hour or so he was unable to stand or to move the joint even the slightest degree without great pain. I found him on a lounge in his office in great distress. The left knee was moderately swollen and somewhat reddened. The entire joint presented increased local heat and was exceedingly tender. Any attempt at active or passive motion was associated with great pain. His temperature was 101°F. He was immediately sent to the Baptist Hospital by ambulance. An immediate blood count showed 15,650 leukocytes and 84 per cent neutrophils. Forty-four cubic centimeters of exceedingly cloudy fluid was recovered by aspiration and microscopical examination revealed numerous pus cells but no bacteria or cocci. This aspiration temporarily reduced the temperature and leukocytosis. Ice cap was applied to the joint and Buck's extension to the leg below the knee. The following day the temperature and leukocytosis was increased. The joint was then opened by a long anterior-internal lateral incision displacing the patella to the outer side. The joint was found full of very cloudy fluid and all the synovial tissues and the capsule very markedly thickened. The joint cavity was washed out with two gallons of 1-20000 bichloride solution and the incision closed, leaving the capsule unsutured to allow drainage into the soft tissues. Buck's extension was reapplied. The patient's temperature and white count was gradually reduced and all pain disappeared. There was some reaccumulation of excess fluid which was aspirated. Motion was begun the third day and increased rapidly. The patient's progress was rapid and he began weight bearing in about three weeks. Within one month his active flexion was possible to 120° and with the use of physical therapy normal motion resulted. He has walked as far as 10 miles without interruption and engages normally in such activities as swimming, etc.

This patient's knee is just as normal and strong as the unaffected one and gives him not the least

discomfort. No focus of infection was ever found and it is assumed that it was a haemolytic or metastatic transference of bacteria or cocci to the affected joint.

An even more difficult problem for solution is often presented to us in the form of the residual major joint involvement in cases of chronic multiple arthritis. We have all seen numerous cases of polyarthritides in which a long and persistent search has been made for the offending focus of infection. Usually the teeth and tonsils are the first possible foci to be removed and after allowing much time to elapse, after such operations, both the patient and the physician experience great disappointment because the chronic swollen joints remain unchanged. The pelvis and prostate are then accused as the source of the toxic or infectious material and are cleared up, but after the eradication of such foci the joints are still painful, swollen and limited in motion and the synovial tissues and capsule thickened. The gall-bladder and gastro-intestinal tract are next thought to be furnishing sufficient noxious substance to the general joint involvement, especially the major joints such as the knees, to justify removal of the former and thorough cleansing of the latter by means of laxatives and colonic flushes. After going through such treatment, both medically and surgically for long periods of time, again the patient, the family and the physician are depressed because the pain, disability and joint pathology remain the same.

The foregoing is a familiar story to us all and many times the patients have passed through many hands in and out of the profession. Drug addictions have occurred as well as marked deformities.

It is right and proper that these many foci have been removed or investigated and that time should be allowed to elapse in order to give an opportunity for anticipated improvement. It is possible and proper, however, that deformities should be prevented by means of adequate splinting, traction and correct bed posture, while in-

vestigation and treatment is in progress. It is agonizing for the patient and harrowing for the physician but it is correct to treat such cases in such a manner.

It is only after these many measures have been instituted and failed and time has elapsed that our attention is directed to the local condition of the major joints, especially the knees, and their contents. In such cases the knees are found to be swollen in a more or less fusi-form manner, the joint capsule is thickened and the joint cavity is filled with semisolid material, which, upon palpation, gives one the feeling of a gelatinous mass. There is no redness or acute tenderness but the joint motions are distinctly limited and often quite painful. There is of course marked atrophy of the extremities between the joints due to long disuse and lack of muscle tone.

It is certain in most instances that we have now to deal with the real offending foci of infection. The synovial membranes have, as before mentioned, become thickened and inflamed, due to the invasion of the original bacterial or toxic irritant and are unable to again restore themselves to the normal. They have become the offending foci of infection themselves and are harboring the cocci, bacteria or toxins and furnishing in addition enough toxin to keep active the other affected major and minor joints. The pathology is much like tonsils that harbor infection and furnish toxins to many parts of the body without manifesting a frankly diseased condition themselves. It is obvious, therefore, that this infected material within the major joints themselves must be removed surgically.

The operative procedure indicated for the removal of this offending material is known as synovectomy. It is accomplished, if the knee joint is to be entered, by the above described long anterior-internal lateral incision, extending from the upper limit of the upper cul-de-sac down the middle of the thigh to the upper end of the patella, swinging around the inner border of the patella and then to the tibial tuber-

cle or attachment of the patella tendon to the tibia. The patella is retracted to the outer side of the knee, thus exposing to full view the entire joint cavity. Upon entering such a joint, large quantities of rice bodies may escape; large masses of the completely degenerated synovial membranes are found which appear much like fresh butter but firm in consistency; large amounts of granulation tissue are always present and are completely removed. The post-patella pad of fat is found markedly hypertrophied and is also carefully excised. After such mechanical cleansing of the joint, the hemorrhage is carefully checked and the capsule and other overlying soft parts are closed completely in the usual way. Buck's extension is applied to the affected extremity and motion begun in 3 to 5 days. Weight bearing is allowed in 2 to 3 weeks. Physical therapy is a great aid in increasing the joint function which is seldom more than moderately interfered with.

It is necessary to carefully select the cases for synovectomy or disappointment is sure to be experienced. The joints must be entirely quiescent and must be considered the major sequelae of the multiple arthritis. It is of more than passing interest to see the marked relief from not only the joints operated upon but also the remote joints.

The following case history will illustrate a typical experience:

Miss H., seen November 7, 1927. Unmarried. Age 40. Two years ago began to have pain and swelling in the second joint of the right index finger. No redness. Shortly afterwards she began to have a similar involvement of the knees, elbows and shoulders. Pains radiated down the arms and legs especially at night. About this time an abscess of her teeth occurred and she had them all removed. No improvement took place. Her tonsils were then thought to be diseased and were removed. Still no better, suffering principally with pains in joints and long bones. A Wassermann examination was said to be 3 plus positive and she was put on mixed treatment. At this time baking of the joints was being tried. The joints of the fingers then seemed to improve temporarily. Shortly thereafter her pelvis was

examined and found negative. She was then given various medicines internally, including mixed treatment, with indifferent relief. Colonic flushes were given for several months and at first were thought to give some relief. A second Wassermann examination was found to be negative. The patient had short periods of relief and then periods of great pain and disability. The fingers remained swollen and the knees showed greater involvement. There was no redness of the joints but organized degenerated tissue could be felt in the knees. Her symptoms and treatment had extended over a period of about three years without improvement. The greatest evidence of pathology was found to have located in her knees, but pains persisted in hands and shoulders as well. The synovial degeneration was very evident clinically, and operation was advised. The right knee was opened and the cavity found filled with a large mass of degenerated synovial membrane which was firm in consistency but appeared like fresh butter. Granulation tissue, fat and the internal semilunar cartilage were removed. The patient's recovery was prompt and all pains disappeared in a few days. Motion of the joint developed rapidly but present flexion is possible to about 100°. Patient did not return for the operation on the left knee for over two months. She stated she had complete relief until a few days before her return. The left knee was then opened and about a pint of rice bodies, a large amount of granulation tissue and fat were removed. Her recovery and the development of joint motion has paralleled the first joint opened. Patient has had no pain and is now walking about, although her last synovectomy was November 15, or about 3 weeks ago.

CONCLUSIONS

1. Acute painful monoarticular arthritis should be carefully investigated and prompt and adequate surgical measures instituted promptly when indicated.
2. Physicians as well as laymen should be discouraged from holding to the idea that to open a joint means certain ankylosis.
3. Chronic arthritis is often kept active by retention of infections within the major joints. Removal of such infected material is necessary to effect a cure in many cases. Careful selection of cases to be operated is essential.
4. Drainage tubes, rubber tissue drains or any other forms of mechanical drains are contraindicated in joint surgery.

REPORT OF 1,000 CASES OF HEMORRHOIDS TREATED BY OFFICE METHODS.*

J. W. WARREN, M. D.,

NEW ORLEANS.

So much hocus-pocus has been given out concerning the office treatment of rectal diseases that in order to get at the real kernel of the nut, I found it necessary to go directly to the best men in America doing this line of work and assist and work with them in their office and private practice, and to stay with them long enough to absorb at least a part of the principles and technique. It was a revelation. In one office, case after case of rectal fistulas in all stages of healing, came in for treatments once or twice a week with no time lost from business or work and resulting in final cure. Three of these proctologists were keen scientific thinkers, having originated their own methods. But they were hobby riders, each to his own method, to the exclusion of all others.

Trying out, comparing and combining these different methods and modifying them to some extent, has been my work, adhering always to the old Biblical injunction: "Prove all things and hold fast to that which is good."

In the treatment of internal hemorrhoids at the present time I use three methods, viz: quinin and urea hydrochlorid, cresylic acid, and phenol. Each of these agents has a different action, is used in a different way, and in a different type of case. One of the three or a combination of two of them is suitable and efficient in 97 per cent of all cases I have examined. These are scientific methods, and as in all truly scientific therapeutics the essentials of success are, first, accurate knowledge as to the action each of these agents will produce; second, correct diagnosis of the actual pathology present in a given case,

*Read before the Orleans Parish Medical Society, November 26, 1928.

and, third, the selection of the agent which best corrects that pathology.

In general, cases of the hemorrhagic type with dilated blood vessels and increased blood supply are suitable for the quinin and urea hydrochlorid method because its action is to reduce the blood supply to the hemorrhoid. Five to fifteen minims of a 4 per cent solution with $\frac{1}{2}$ per cent novocain is used. It is therefore injected not into the hemorrhoid, but above it, around and among the supplying blood vessels contained in the vascular area between the muscular and mucous coats. This produces a fibrinous exudate around these vessels, choking off the excessive blood supply, thus starving the over-fed pile, which begins at once to atrophy. Judgment must be used not to carry this limiting process too far.

There is one notable exception to the above rule, viz: there is a large growth often seen low down, sometimes called a mucous pile, which may be freely injected with quinin and urea hydrochlorid right into the centre, and the result is almost magical. One treatment causes the entire disappearance of the growth within forty-eight hours. An error of diagnosis will cause regret.

In milder and more recent cases where the general blood supply seems to be fairly normal, cresylic acid in vegetable oil, 1 or 2 per cent, is mild and efficient. But again it should not be injected into the middle of the pile but submucously only. This produces a peri-phlebitis and peri-capillitis, restricting the larger and actually obliterating many of the false vessels which make up the hemorrhoid, thus promoting rapid absorption or atrophy. As many as twenty of these pathological veins have been observed in a cross-section of a hemorrhoid.

In more obstinate cases, where there is more fibrosis, a combination of these two methods, alternating weekly, proves more effective.

In anal and rectal prolapse, phenol in similar strength or stronger may be injected between the detached mucosa, and the wall or muscle from which it was separated. This produces an inflammatory adhesion and re-attachment, tightening the relaxed membrane and correcting the prolapse. It is important to begin at the highest point of detachment and treat downward, week by week.

If the injection of hemorrhoids is correctly done, there is no pain at the time of the injection nor afterward. The majority of my patients, especially the nervous and apprehensive kind, are treated the first time without their knowledge, *i. e.*, while they believe only an examination is being made.

In hemorrhagic cases 90 per cent cease losing blood after the first treatment and cease protrusion after the second or third. From three to six repetitions of each hemorrhoid, a week or so apart, results in normalizing the excess blood supply and tightening up the relaxed mucosa. Gradual atrophy of the tumors begins in twenty-four hours and continues, with added treatments, to final disappearance. At the original sight of a hemorrhoid the mucosa, instead of being loose and boggy, appears tougher, paler and is tightly adherent to the muscle wall.

The primary cause of hemorrhoids seems to be the absence of valves in the hemorrhoidal veins. In the upright position of man, the weight of the ascending column of blood falls downward on these delicate valveless veins, mechanically producing the venous dilatation and multiplication known as hemorrhoids. It is difficult to avoid the conclusion that the "Genus Homo" was originally created to walk upon all fours.

REPORT

1012 cases of internal hemorrhoids examined in 7 years.

782 of these protruding type.

320 of these hemorrhagic type.

38 strangulated at first visit.

163 were complicated with rectal fistulas.

114 were complicated with anal fissures or painful ulcers.

48 were complicated with polyps which were removed.

32 were complicated with skin tags or external hemorrhoids which were removed after treating the internal hemorrhoids.

38 cases had previously been operated for piles, five of these twice and one three times.

6 cases treated for internal hemorrhoids during pregnancy. 4 of these had suffered very much from hemorrhoids at the preceding delivery. Of course, these patients were treated lightly and extra precautions taken to avoid any pelvic irritation. There were no miscarriages and no hemorrhoidal complications at the succeeding deliveries.

9 cases, or about 1 per cent, were operated, hemorrhoidectomies. Another 2 per cent should have had the radical operation, and were so advised but refused operation, so that 3 per cent really needed the radical operation.

805 of these cases were discharged, the others failed to return to be completed.

27 of the discharged cases have had some return of the hemorrhoids after from one to seven years, and have been treated a second time, and one case a third time.

The office method has its disadvantages: Patients from distances have to remain longer with the doctor or make several more or less expensive visits, for, while relief begins at once, complete atrophy requires some weeks.

By far the greatest disadvantage of this method is the possibility of the hemorrhoids returning. The late Dr. J. D. Albright, of Philadelphia, told me that I might expect about 3 per cent of returns. In my 800 cases discharged you will note 27 returns, or nearly 3½ per cent. Well, when all are in, it may be 4 or 5 per cent; that is a small matter, because I find that returns are slight, only two or three treatments being again needed. All patients are instructed to return promptly, if and when the need is felt.

Advantages of the office method: There is no operation, no bed, no hospital, prac-

tically no suffering, no hospital bills, no nurse bills. Five minutes in the office once or twice a week, patient continues to earn his salary, to hold his job or to keep up his business. Working patients earn enough during treatment to more than pay for same. One physician patient told me that the time lost in bed for a hemorrhoidectomy would have meant a thousand dollar loss to his practice. To some of you here and to many others, it would mean more than that.

Still another advantage, of the greatest importance, is that the method leaves the natural structures and safeguards of the anal canal intact, and unimpaired. Wise old Mother Nature designed very important and delicate functions of control and comfort for the little anal valves, the crypts, the columns and the papillae, and she exacts serious penalties for their removal. Thanks to surgical progress, old brother Whitehead's operation is rapidly becoming a relic of past errors; fibrous annular stricture is worse than hemorrhoids.

Finally, there is nothing illegitimate about the method, only an old prejudice. There is nothing unethical about the method when practiced by ethical men. There is nothing secret about the method, for science belongs alike to everybody.

I am frequently asked about slough. Gentlemen, the day of slough in rectal work has passed, just as the day of "laudable pus" has passed in general surgery. I have had a few small local fissures at the point of needle puncture, sometimes resulting in some pain and a little blood, but never serious, the patient not even going to bed and always healing without further mishap. These are to be regarded the same as little stitch hole abscesses in surgery, viz: a little slip in technique somewhere.

A physician friend warned me to be very certain about my statistics as to deaths, tetanus, and other general infections following hemorrhoidal treatment. As there has never been a single death in my prac-

tice, nor a single case of tetanus or other general infection, I put the question up to a couple of the biggest men in the world doing this line of work, men who number their patients by the thousands instead of hundreds.

Dr. J. F. Montegut, Thirty East 40th St., New York, says: "In answer to your inquiry as to whether I have seen tetanus or other general infection following injection of hemorrhoids, my answer is plainly—no." Dr. Montegut is a strong advocate of the cresylic acid method.

Dr. E. H. Terrel, Richmond, Va., is the Father of the quinin and urea hydrochlorid method, and if you will write him, he will gladly send you a reprint telling you all about this method. He says: "I have been using quinin and urea constantly since the early part of 1913. During this time, I have used the remedy in approximately five thousand cases of hemorrhoids. In no single case has there been symptoms of tetanus or other systemic infections. Of course, there have been a few minor local infections, about one-half dozen all together."

DISCUSSION.

Dr. W. A. Love: It has been my pleasure to observe the work Dr. Warren has done over a period of the past fourteen months. During that time I have not been able to refer as many cases to him as I would like, but I have here the data on sixteen treated, besides myself. I approached this method with fear and trembling on the infection and septicemia basis, but after talking to Dr. Warren I thought I could take my chance along with the others, since they did not die. Of the cases referred in the past fourteen months, fourteen were cured and two of the later cases are still under treatment. Among these cases of hemorrhoids, two were accompanied with fairly complete prolapse, seven complicated by fistulae; ten, ulceration and bleeding, and two complicated by peri-rectal abscess. Of these, six lost time from work. The average time per case was 26 hours. One case lost a maximum of 48 hours, and the minimum case, which I take great pride in being my own, lost four hours. Of these cases, eight of the seventeen were complicated by constipation and ten were complicated by gas distension.

In discussing Dr. Warren's paper I am not in a position to discuss his technique, as I only know what he told me and what I experienced myself. The question of constipation resulting from rectal irritation with intestinal gas distension and the toxemia that goes hand in hand with this constipation, I explain to myself along these lines; that this constipation and gas distension are the result of a reverse peristalsis that is said to be due to the irritation of the rectum, a condition resembling partial intestinal obstruction taking place. Alvarez explored on rabbits, without the use of novocaine or cocaine, pinching the ileum in a circular manner with forceps to produce irritation. On opening the rabbit several hours later he found intestinal obstruction taking place (the same thing, only in a lesser degree, that we find after closing the cecum in appendectomy); he found a spastic condition with the bowels in contraction, the bowel above the point of irritation empty, showing that the normal gradient meeting the downcoming wave had produced a block beyond which nothing could pass. Kernsten, on the other hand, cut the ileum of a dog and sutured the cut end; he found that food coming down would pack against the closed end. Irritation is one of the things that produce reverse peristalsis. It can be produced anywhere in the gut, to my way of thinking. This irritation anywhere along the intestinal tract will produce waves of peristalsis which go back from anus towards the cecum, meeting the oncoming downward peristaltic wave, causing constipation and obstruction. Irritation will often produce lesions in the mucous membrane of the intestine and in addition to this reverse peristalsis there will be motor insufficiency; therefore the rectum must be emptied in these cases of irritation, or later on it will lose its nerve tone to where we have the irritated condition complicated by impacted feces in the rectum. Dr. Warren believes that if we can relieve these cases that it is our duty to use any means possible.

In conclusion I wish to state that I am not only delighted with my personal experience with this treatment, but delighted with the results I have had occasion to observe in the sixteen other cases where this method was employed.

Dr. H. B. Gessner: I should like to know how Dr. Warren makes the hemorrhoids present. Does he stretch the sphincter with the fingers, or bring out the hemorrhoids with a suction (Bier) cup? Another thing I should like to know is whether, when he inserts the needle, he pulls back on the piston so as to make sure it is not entering a vein?

Dr. E. H. Walet: In the cases complicated by fistulae, how were the fistulae dealt with? What method was used to cure the fistulae?

Dr. B. A. Ledbetter: I spent six weeks in Battle Creek, Michigan, this past summer and Dr. Martin informed me that he has used this method with wonderful results.

Dr. Maurice Lescale: The successful treatment of hemorrhoids whether carried out in an office or hospital depends primarily on the method used. The surgical methods are in my opinion best because they give the most assurance of a permanent cure. The injection method as usually recommended at the present time is supposed to produce a fibrosis which causes the veins to be obliterated and also a contraction of the aerolar tissue which is an important part of the hemorrhoid. Some atrophy of the veins and connective tissue does take place, but the mucous membrane does not shrink correspondingly and a sack is often left with no support. Further trouble is bound to take place in many of these cases.

Many patients fearing surgery start with the injection treatment but have operations forced upon them by later developments. In June I was consulted by a man who gave this history: One year previous he submitted to the injection treatment for four hemorrhoids. During the course of treatment he was told that four fistulae showed up. He submitted to operation to have these cut out. At midnight he had a bad hemorrhage which was stopped only with difficulty. My examination of him revealed a rectum looked like some hemorrhoids instead of fistulae had been operated upon and some unhealed ulcers still remained.

A past-president of the American Proctologic Society has related his personal experience: When his hemorrhoids were injected he felt a little tenseness for ten or fifteen minutes. He was completely relieved for several years, but then there was a recurrence of the hemorrhoids. Were it not for his advanced age he says he would submit to an operation and be permanently cured of them.

Dr. Allan Eustis: It looks to me as if the medical men are the principal ones championing this procedure, and I frankly admit I am a convert to it. I was consulted two years ago by a patient and having the usual prejudice against the injection method, also a fixed idea of subsequent sloughs and septicemia, I decided against it. It happened that a relative of mine who had been subject to hemorrhoids for about fifteen years was recommended to take this treatment. I used my influence with her to be operated on, but she said she could not think of undergoing an operation. She was a patient of Dr. Love so I spoke to him about it, and he gave me his personal experience. I then advised her to go ahead. That

might be one of the cases Dr. Warren spoke of. She received her first treatment at the first examination and did not know she was getting the treatment. She is a highly nervous individual and has been completely cured for about a year now and has enjoyed one year of perfect comfort. I have another relative, a brother, who has suffered a great deal, whom I referred to Dr. Warren for the treatment. I tried, but without success, to get him to return for further injections but he has had complete relief for the past six months, and is satisfied.

All I can say is that since my conversion I have referred about six or eight cases to Dr. Warren and every one of these cases, to date, have had admirable results.

Dr. J. W. Warren (closing): Answering Dr. Gessner's question as to how I go about making the hemorrhoids present, I do not make them present. I take a Brinkerhoff speculum, pass it well inside the rectum and treat them right there in situ if I am going to do the submucous treatment with cresylic acid. If I am going to use the other treatment, I go above the hemorrhoid and pass the needle on the bayonet (demonstrates the method with drawings on the board), so that I do not want them outside. In strangulated cases, where they are on the outside, I work on them until I get them inside and I caution the patient not to allow them to prolapse for a day or two. In painful strangulations divulsion under local gives great relief.

Now in regard to the question whether I aim to introduce the solution between the veins, that is, take pains not to inject into the vein. If you will recall your anatomy, you will remember that the blood supply comes down the gut between the mucous coat and the muscular coat and just about the upper part of the hemorrhoid these vessels branch out. I go right into that region and inject the solution, making no attempt to avoid going into the vein. If you should inject some of the solution into the vein (the whole dose is but one grain) no harm is done, but you have lost your load, it does no good, and the injection must be repeated at a later date. In malignant malaria we often inject ten to fifteen grains of quinin and urea right into the vein.

I have frequently been asked about the risk of making a clot (embolus) inside the vein. You know that we inject that in the vein all the time. I have never seen or heard of a case; men doing this work in thousands of cases tell me they have never seen a case. I have had patients who complained of a little singing in the ears (quinin effect), but even if one has an idiosyncrasy for quinin, to give him one grain would produce no noticeable effect and there would be no danger.

How to handle fistulae. That is a big subject and it would take very much more time than we have at present to go into the details of treatment of different types of fistulae. Just in a nutshell, I use four different methods of treating the fistulae, all depending on what examination reveals, whether a complete fistulae where the fistulous tract goes behind the sphincter, that is, outside of the sphincter ring; or whether through the sphincter fibers; or whether inside the sphincter ring, that is what I call a marginal fistula; or an incomplete or blind fistula. After determining the nature of the fistula I then adopt the procedure that I consider best adapted to the correction of that particular type of fistula.

BACTEREMIA: COMPLICATING ACUTE OTITIS MEDIA*.

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MERIDIAN, MISS.

"General Sepsis of Otitic Origin" would have perhaps been a better title, and yet the word sepsis carries with it the idea of a much more serious condition than it is my intention to discuss.

We are all predisposed to regard an acute otitis media as a more or less simple matter. After we have performed a paracentesis of the tympanum, we frequently give instructions to the patient if an adult or to the mother of the child as to the management of these cases at home with an occasional trip to the office to see how the case is progressing. I fear we are more or less influenced by the attitude of the family who feel that a running ear is an annoying but simple thing that will get well in time, and who frequently object to so many treatments at the office. If the case be a child we often have to contend with the interfering neighbor and friend who ridicules the doctor's efforts to have the patient return for many and useless treatments, frequently stating that she has a friend who has a child who had a running ear for months, and finally got well without any treatment at all.

I think we will all agree that an acute suppurative otitis media is never limited to

the cavity of the middle ear. There is always, in every case, an invasion of adjacent areas. This may be only the adjacent antrum cells, but more often the invasion is much more extensive. We all know that the majority of these cases present a symptomatology sufficiently mild both locally and constitutionally to consider them as simple otitis media cases. This paper is not concerned with these cases but with that smaller group that present serious symptoms, often from the inception of the infection, the proper treatment of which is often very puzzling and difficult to determine. I think we all have come to realize, in the past few years, that the indications for operation based on physical signs and symptoms as laid down in our text books are misleading to a large extent, and that, if we wish to return our patients to health and strength, we must learn to operate earlier and to recognize danger signals than those otherwise mentioned.

I believe firmly that the acute cases of otitis media are essentially hospital cases and should be hospitalized immediately. We cannot hope to cope with, diagnose and treat these cases otherwise. The earlier such control is instituted the better the prognosis.

I wish to emphasize the importance of thorough examination, especially by the laboratory, embracing a complete blood, hemoglobin, leukocytes, red blood cells, differential, blood culture, and a culture from the ear, which to my mind is of greatest importance, as the type of infecting organism frequently aids us in prognosis. If we know the type of organism present we are at once in a position to make a decision in a doubtful case.

Right here it is well to mention the type of bacteria present. We know that the streptococcic group produces the most virulent cases. The streptococcus mucosus capsulatus (*Pneumococcus* type III) is the most virulent and also the most insidious of the group. With this type we

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always have a very seriously sick patient, and with very little local pathology present even on operation. The next most virulent type is the hemolyticus and is most commonly found in the thrombo phlebitis of the lateral sinus and in the bacteremia cases. Third, the streptococcus viridan which is less destructive than the preceding types.

With these few introductory remarks I will now pass on to the discussion of the title of this paper, bacteremia associated with acute otitis media or otitis sepsis. Does this condition occur without the formation of a thrombus in the lateral sinus or in the smaller veins in the temporal bone? I am convinced that in children such a condition occurs, and much more frequently than we think. In children the floor of the middle ear may be very thin or absent and direct invasion of the jugular bulb is possible. I also feel that a badly performed paracentesis of the tympanum with injury to the inner wall of the middle ear may be a causative factor in procuring a direct means of entrance for the invading organism to the blood stream.

I have recognized and treated twelve cases of otitis sepsis or bacteremia without opening the lateral sinus or ligation of the internal jugular, and nine of these cases without other operative procedure than a paracentesis of the tympanum, with one death, and this case was an operated case and unconscious when admitted to the hospital.

All observers apparently agree that a positive blood culture means a periphlebitis which if not operated is followed by a thrombus within the lateral sinus. All recognize or credit Nature with accomplishing a cure in occasional cases by the formation of a thrombus which becomes sterile, invasion of the blood stream stops, the patients' blood takes care of the bacteremia and becomes sterile, the clot becomes organized, absorbed and oblitera-

tion of the sinus results and the patient gets well.

I am convinced, however, that we have an invasion of the blood stream without a periphlebitis and without the formation of a lateral sinus thrombosis, and the patient gets well without any of the serious complications developing.

In a recent article an author states "That in every case of otitis sepsis early or late, mild or virulent, our primary and most valuable single measure is the ligation of the internal jugular vein, even though you may believe you have not a phlebitis to deal with. Whether the sinus is opened or not is to my mind of secondary importance." I cannot agree with this statement at all. Further on in this article he states that "It is obvious that we have a goodly number of sepsis cases due entirely to invasion of the blood stream through channels other than the sigmoid sinus," and with this I fully agree and feel that we should be fairly well convinced that we have a periphlebitis or thrombosis of the lateral sinus before resorting to internal jugular ligation, which is often fraught with some danger to the patient. Ligation of a thoroughly palulous jugular and lateral sinus results in rather serious symptoms, but where Nature has done this thoroughly and slowly by formation of a thrombus with ample time for the completion of collateral circulation very few symptoms develop from a ligation lower down below the clot.

I have seen these cases, to be reported later, apparently of simple otitis media with persistent temperature of 100-101°, with no definite signs of surgical mastoid involvement and seemingly not very sick show a positive blood culture of the invading organism, get well without any operative procedure whatever. I have seen cases progressing nicely for a couple of weeks, and suddenly develop a high temperature for a few days and shows a positive blood culture and get well without operation. The main difficulty is

the differential diagnosis. To determine whether there is a thrombosis of the lateral sinus or not, for upon this depends whether we subject the patient to a most serious major operation or merely to a blood transfusion. The treatment always to my mind is a blood transfusion, to be repeated as necessary according to the condition of the patient, and most important depending upon the analysis of the blood examination. The destruction of the erythrocytes and a low hemoglobin percentage associated with temperature, chills, etc., is more important than a high leukocytosis or increased polynuclear count.

Lillie of Rochester uses germicidal dye added to the blood, the choice of the dye depending on the organism, mercurochrome for Gram negative organism, and gentian violet with the blood for Gram positive cocci. I have tried both but am convinced that blood transfusion alone is of much more value, and acts not only as a supportive therapeutic measure but is curative as well. It also adds a considerable number of new oxygen carriers, and third it furnishes a powerful hematopoietic stimulus.

I have seen acute suppurative otitis media complicating pneumonia and with a positive blood culture. Of course here it was impossible to determine the origin of the sepsis, but we certainly would not have been justified in ligation of the jugular and exposure of the lateral sinus.

Hays in his book reports two cases similar to the above. One a case operated on both sides. On the twelfth day this patient had a chill and temperature rose to 104°; later the temperature was 106°. Blood cultures were negative; however, a blood transfusion was given and patient's temperature went to normal, and remained so. H's second case was somewhat similar, the temperature going up and down for a week with repeated negative blood cultures. Blood transfusion caused the temperature to return to normal and patient immediately got well and remained so.

REPORT OF CASES.

Case 1. Wilson, aged 7 years, had been to my office three weeks previous to his entrance to the hospital with an acute suppurative otitis media. The discharge had persisted for two weeks in a mild form. There had been none for the past seven days and the patient had been regarded as well. On the eighth day after the ear had stopped discharging the patient was taken with a severe chill and his temperature went to 106°. This was repeated on the second day and on the third, on which day he was admitted to the hospital. In view of his recent history a most careful examination was made of this ear. The drum was practically negative, no discharge, no bulging, cone of light returning, malleus and short process distinct, no tenderness over mastoid, tympanum incised but nothing found. A roentgenogram was negative for mastoid destruction. The blood picture showed 80 per cent neutrophils, with the total leukocytes 22,000. A blood culture was positive for streptococcic hemolyticus; all other examinations being negative. A blood transfusion was given on the second day of admission. Two days later with the hemoglobin and red cells decreasing, and the temperature and chills still being present, a second transfusion was given. Two days later the temperature did not rise above 101° and then gradually returned to normal. The blood culture became negative three days after the second transfusion. The patient was dismissed as cured two weeks after admission.

Case 2. Joe T., aged 4 years, began to have pain in both ears two weeks ago. The examination showed abscesses on both sides. The drums were incised with a discharge of thin serum from both ears. A culture showed streptococcus hemolyticus. For the first few days the patient ran the usual course, with a free discharge from both ears and a temperature from 99° to 100°. On the tenth day the patient apparently had a chill and the temperature rose to 105°. This was repeated for the following two days. Examination failed to show any evidence of mastoid cell destruction. A roentgenogram was negative; the drums were flat and not bulging. The total leukocytes numbered 12,000, and the differential count showed 75 per cent neutrophils. A blood culture was taken and showed a few colonies of streptococcic hemolyticus. A transfusion of blood was given on the fourteenth day. The temperature returned to normal within twenty-four hours, and for the next week did not go over 100°. Two subsequent blood cultures were negative. This case was not operated and was very similar to the preceding one.

Case 3. Mary Q., aged 5 years, had had a mild case of influenza followed a week later by an acute bilateral suppurative otitis media. Both

drums were incised and there followed a free discharge of pus. This continued for about two weeks during which time the patient was doing well, having no temperature, up and playing around. The culture from the ear showed the presence of streptococcic viridans. About this time she began to run a temperature of about 101-102° daily, always highest in the afternoons. The physical examination was negative including the lungs and heart. There was no pyelitis, urine being sterile on culture. An examination of the ears did not show any definite signs of deep involvement of the mastoid cells apparently, though of course we knew from the discharge that there was some involvement present, yet we did not feel it necessary to operate. The blood culture was positive on two occasions for the same organism. Transfusions and germicidal dyes were both refused by the parents as was operation when later advised. Treatment was supportive in a large measure, careful attention was given both ears in the matter of local treatment. She continued to run about the same temperature for two weeks and during the time a second blood culture was taken and found positive. The temperature however at the end of two weeks began gradually to return to nearer the normal limits, and at the end of a month was normal and the patient made a complete recovery.

Case 4. Mary S., aged 5 years, began to have trouble one week before being admitted to the hospital with sore throat, moderate temperature and nasal discharge. This condition persisted for several days, and on the seventh day the patient apparently had a chill and her temperature rose to 106°. She also complained of a right earache. The following day she was admitted to the hospital. Examination showed a post nasal infection pharyngitis, tonsillitis, and the right tympanum was reddened but not bulging. A paracentesis was done with the escape of blubber of air and a little serum. A culture showed streptococcic mucosus capsulatus. A blood culture was made at the same time and showed the same organism in forty-eight hours. A transfusion of blood was given and repeated every other day for three doses. The patient continued to have a chill and a temperature of 105° every day until the tenth day when she missed the chill and then the fever gradually subsided and returned to normal. The discharge from the ear was never profuse and there was never at any time any apparent involvement of the mastoid demanding surgical intervention. The leukocyte count never went above 15,000. The ear was dry in two weeks, and the patient was dismissed cured without any further surgical intervention.

There were four other cases similar to those just described, the involving organ-

ism being streptococcic hemolyticus in three and mucosus capsulatus in one. All received blood transfusions and none had any further surgical procedure other than paracentesis of the drums. Three cases had both ears involved and one case had one ear involved. All these cases got well in from one to three weeks. One case had a metastatic abscess on the right ankle which was opened and drained and the same organism obtained from the pus. Two of these cases ran a temperature not higher than 103° degrees at any time and without distinct chills.

Case 9, a boy of seven years, was admitted to the hospital with a discharging ear of one week duration and with evident involvement of the mastoid, following an attack of influenza two weeks previously. A simple mastoidectomy was done without exposure of the lateral sinus. On the third day the patient had a chill and a rise of temperature to 104°. Blood examination showed a leukocyte count of 18,000. A blood culture was taken and was positive in thirty-six hours for streptococcus hemolyticus. The following day he had another chill and a rise of temperature. The mastoid wound was reopened and the lateral sinus exposed. In spite of the healthy appearance of the sinus without granulation on it or appearance of inflammation, the sinus was opened and found to be absolutely patulous, and no evidence of clot present anywhere. No ligation of the jugular vein was done. The patient was returned to his room and a blood transfusion given, which was repeated four times at intervals during the following month. This patient had a stormy time during this period but eventually the temperature returned to normal, blood culture became sterile in two weeks, and the patient was dismissed well.

Case 10. An infant of nine months was admitted to the hospital in a semi-conscious condition with a temperature of 106°, a discharging left ear and a swelling behind the auricle and over the mastoid, apparently due to pus. The age of the child precluded the diagnosis of a mastoid abscess because of the known fact that only an antrum was present; there being no developed mastoid cells. The condition was evidently an abscess under the periosteum of the external canal due to the pus from the middle ear dissecting up along the canal wall to find exit above the mastoid. This was incised with the discharge of a very thick pus, and the sinus tract leading into the middle ear along the posterior canal wall discovered. There was no fistula into the antrum but only bone denuded of periosteum, however,

for fear the antrum might contain pus it was opened but found free. The infiltrating organism was a staphylococcus. Blood culture later showed the same organism. Mercurochrome was being used at this time fairly extensively, and was given in this case without any favorable results. It was repeated and preparation made the third time to give it when the patient died five days after entering the hospital. The blood culture was still positive.

Case 11. The patient was admitted to the hospital with a discharging ear of two weeks duration. The day before admittance the patient's temperature had risen to 104° , after it had been running along near normal since the ear opened itself. Examination showed a profuse discharge from the ear, some tenderness on pressure over the mastoid antrum and tip, and bulging of the drum. The leukocyte count was 12,000, and the physical examination was otherwise negative. A free paracentesis was done in the hope that better drainage would relieve the temperature, but this was not the case. She continued with high fever for the next four days; no chills were present. A blood culture was positive for streptococcus hemolyticus. On the fifth day a simple mastoidectomy was done and there was found a moderate destruction of the mastoid cells. The cells were cleaned thoroughly without exposing the sinus, however because of the possibility of periphrinitis of the sinus it was decided to fully expose the sinus. There was apparently no involvement present, so other than the exposure nothing further was done to the lateral sinus. The patient was then given a blood transfusion and because the temperature did not go over 101° after that afternoon, no more were given, and she ran an uneventful convalescence and was discharged cured. It is possible in this case that the patient had a mild phlebitis sufficient for the organism to gain entrance into the blood stream, and that exposure of the sinus and freeing it from pressure of surrounding infected tissue permitted the inflammation to subside without formation of a thrombus. However, the appearance was against this.

Case 12. Francis, aged 6 years was taken, sick one week before admission to the hospital with a severe sore throat, culture from which showed the streptococcus mucosus capsulatus. Forty-eight hours later she developed an abscessed left ear which was excised with an escape of bloody serum, culture from which showed the same organism. During the first twenty-four hours she developed a rash similar to scarlet fever but which disappeared in forty-eight hours. The child's temperature was high from the beginning, and on the day before admittance she had a chill and fever of 106° . When seen early the next morn-

ing examination showed no trouble in heart, lungs, or kidneys. There was a moderate discharge from the left ear, good opening in the drum which was flat, and the middle ear was apparently draining well. There was no mastoid tenderness. The pharynx was red and injected. A blood examination showed a leukocyte count of 15,000. A blood culture was made at the same time. That afternoon she had a severe chill and the temperature again went to 106° . That night she was mottled in appearance, bluish lips, ears and finger tips. The next morning the temperature was down to 101° but rose again to 106° in the evening. At this time the blood culture was again positive. There was no headache or pains anywhere. It was decided to do a simple mastoidectomy, in view of the blood findings I could not feel that there was serious involvement or destruction of the cells. This was done the following morning, and some destructions of the cells around the antrum found, and some small amount of pus. I would say only a mild mastoiditis was found. The sinus was not exposed anywhere as the destruction of the mastoid cells was not deep. A blood transfusion was then given. There was a rise of temperature that evening to 106° again, but the following morning it returned to normal and only arose to 103° during the day. The next day however, there was a chill and a rise of temperature to 106° and a second transfusion was given the next day. The second blood culture at this time was still positive, but only had about one-half the number of colonies that the previous one had shown. After the second transfusion the temperature never went above 102° and gradually returned to normal in three weeks. The blood culture was negative three days after the second transfusion. There was a metastatic abscess on the right wrist which was opened and drained. The lateral sinus was not exposed, opened or examined and the jugular not ligated. The child made a good recovery and was discharged cured.

In conclusion, I would like to say that, in spite of the statement that whenever a diagnosis of lateral sinus thrombosis is made based on a positive blood culture, chills and fever, the only treatment is operative and consists of ligation of the internal jugular and opening of the lateral sinus, there are cases in which it is utterly impossible to find out which sinus is thought to be causing the trouble, I believe it is only fair to the patient to give him a transfusion of blood before attempting operative procedure.

Second, there are a fairly large number of otitis cases giving a positive blood culture due to direct invasion of the blood stream without any involvement of the lateral sinus or surgical destruction of the mastoid. Blood transfusion is of the greatest value in these cases, and where proper laboratory tests have been performed as to type, hemolysis and cross agglutination, etc., is far safer than germicidal dyes which at best are dangerous, and far from giving brilliant results as previously stated.

I do not wish to give the impression in this paper that we are to neglect surgical intervention, but I do contend that it is often done without a most careful effort to determine the necessity. I wish to condemn the practice of ligating the internal jugular vein, without even examining the lateral sinus, on the strength of a positive blood culture, as is advocated by some and frequently done. I feel that at least we should examine and know we are dealing with a lateral sinus thrombosis before resorting to such a drastic procedure. Often exposing the sinus alone is sufficient to clear up a periphlebitis. Third, I wish to emphasize the fact that we cannot depend on a positive blood culture in making a diagnosis of lateral sinus thrombosis. We all know that many cases never gave a positive blood culture, and often not even a chill and particularly high fever, though there is a temperature of irregular type. Fourth, that every otitis media should be cultured at the earliest possible time, preferably at the time of incision of the drum. Whenever the organism is of the streptococcus group the patient should immediately be hospitalized, if possible, a complete blood examination should be made frequently and a blood culture taken whenever there is an irregularity of the temperature. Blood cultures are to my mind important and if taken early and frequently will show a much larger percentage of positive results than were previously found, and in many cases will

prevent a major operation, that would be performed at a later date because of a suspected sinus thrombosis.

DISCUSSION.

Dr. Lippincott: I don't think that I can add anything that has to do with infection and blood transfusion. I don't think that in many cases any absolute good has been done by transfusion.

There are cases that it does not do any good no matter what you do, however I am always glad to practice transfusions before operations, and to hear the papers on the subject.

I have enjoyed these discussions.

THE EARLY TREATMENT OF STRABISMUS.*

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MERIDIAN, MISS.

There seems to be a prevalent idea among the laity, and to a large degree among the general medical profession, that the treatment of a cross-eyed child should not be started until the child is old enough to go to school. There also seems to be a very prevalent idea that an operation is the best treatment for squint. Little do they realize that, by the time the child has reached the age of five or six years, great and permanent damage has been done the crossed eye. It is true that in the older child an operation may straighten the eye, but it is then too late to restore the lost vision and fusion sense. When we consider that binocular vision is a result of the development of the fusion sense, and that the fusion sense is developed in the first year of life and is gradually strengthened up to the seventh or eighth year, so much so that the sight of one eye may be lost, yet no deviation of that eye will occur. As Claud Worth says: "When the fusion faculty is fairly well developed, nothing but an actual muscular paralysis can cause an eye to deviate, in which case the resulting diplopia is intolerable. Sometimes, however, owing to a congenital defect, the fusion faculty develops later than it should,

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or it develops very imperfectly, or it may never develop at all. Then, in this case, there is nothing but the motor co-ordinations to preserve the normal relative directions of the eyes, and anything which disturbs the balance of these co-ordinations will cause a permanent squint. Thus, the essential cause of squint is a defect of the fusion faculty."

This disturbance of the fusion faculty may result from a number of causes, infectious diseases, fright or shocks to the nervous system, hereditary, anatomic anomalies, and the one most commonly found, errors of refraction. In order to prevent the confusion of seeing double, nature gradually but surely suppresses the vision of the weaker eye, so that by the time a child reaches the age of 5 or 6 years, the sight of that eye is permanently impaired.

Therefore, in the treatment of this condition, it is most important to get the child early. This can be done only by educating the family doctor and the public not to wait until the child is ready for school. We must get them to bring the child for examination as soon as the condition is discovered. We should take time and patience to examine these cases thoroughly, and the parents should be impressed that they, too, must take time and patience to carry out all directions given them. Too often the parents lose hope if they do not see immediate results. Parents often have a strange prejudice against such a young child wearing glasses. Frequently some kind friend will tell them that the child's eyes are being ruined by wearing glasses which may be strong enough for the grandmother to read through. I mention these things because unless you get the confidence and co-operation of the parents, you doomed to failure before you start.

Of course, any necessary attention to the general condition of the child should be attended to, for a weak or sickly child does not respond well to treatment.

The eyes should be examined and most carefully refracted under atropin. In the very young, this sometimes necessitates several attempts before a satisfactory examination is made. Of course, in eyes where there is an opacity in the media or other defects, it may not be possible to give much relief, but fortunately, most of these cases are due to errors of refraction. Rather full correction should be ordered, but overcorrection causes a blurred image and tends to weaken the development of the fusion sense. The age at which glasses can be started is usually stated in the textbooks as three, but in many cases they can and should be ordered at the age of two years or younger. I have in several cases successfully put glasses on children younger than the age of two years. The atropin should be continued for several days after the glasses are placed on the child, and then stopped. The child should be kept under observation. If the eyes become straight and remain so, good and well, if not, then the fixing eye should be kept under the influence of atropin for a period of time, or, perhaps, better still, the fixing eye should be kept bandaged for several hours each day, so as to force the use of the squinting eye. This treatment should be kept up for at least one or two years. If this fails, the use of bifocal glasses may be tried.

When treatment is started in a child of 2 or 3 years of age, in most cases the vision of the squinting eye will become normal and the eyes will be straight, but if treatment is delayed until the child is 6 years or older, the vision will never become normal.

Operative treatment has not been mentioned because these cases should be treated before an operation is advised, and if treatment is started early enough, in most cases, operative treatment will not be necessary.

DISCUSSION.

Dr. Wilkins: We thank Dr. Arnold for his paper.

I am glad to tell of the privilege I had of getting several youngsters at a pretty early age, and after treating the eyes for a time to see the gratitude of the parents. I think it is best to get them to see the necessity of the child wearing glasses.

I advocate a long dilatation with atropin. Sometimes I use homatropin as it doesn't take much longer than atropin.

I usually get the little fellows from 21/2 to 3 or 21/2 to 4 to come to my office from 15 to 30 minutes, say about twelve times. I try to get the co-operation of the child and then the parents.

I had one little fellow come to my office about six months. I dilated the pupils two or three time with atropin. I couldn't make friends with him. I had him come in every two or three weeks. They lived 15 or 20 miles away and usually made the trip twice a month. At last I made friends with him. I gave him a nickel or ten cents, and finally won his confidence.

At one time I had for patients two delightfully cute little girls who were afflicted by deformity due to strabismus. Otherwise they were beautiful, and members of prominent families. Soon other people noticed them wearing glasses, and therefore served as an influence to other children in need of glasses.

Sometime after treatment and wearing glasses the eyes will straighten, and the glasses may be left off. Then again the patient may continue to have to wear glasses.

I have a nurse in my office 35 years of age who has been wearing glasses 20 years. If her glasses are removed for a few minutes the right eye crosses over, and we get a permanent fixation of parallel line.

Dr. Travis: I want to say that I never attempt to fit glasses without atropin. I generally put the patient under atropin treatment for three, four, or six times.

A child will not be patient, and for that reason I have him come in every day until I can fit him with glasses. I watch the patient, and sometimes get perfect results.

I think it is generally advisable for the patient to continue to wear glasses.

Dr. Arnold: The age is the one thing I want to stress.

I formerly never attempted to fit a child with glasses before the age of three. I have tried some younger. I don't hesitate to put glasses on a

child as soon as he can walk and handle himself, say about three or four years of age; sometimes two or three years of age. I think that in these cases the best thing to use is homatropin or atropin, however for most cases I prefer atropin.

To fit with glasses is the only thing to do.

As to how long a patient is to wear glasses, I generally tell him always. In fact, I think it is a mistake in almost every case for a patient to go without glasses except temporarily. I don't encourage them to go without them. I have seen patients who have worn glasses take them off, and the minute they are removed the eyes turn in.

CARDIORRHAPHY:

WITH REPORT OF CASE OF VENTRICULAR PUNCTURE.

J. Q. GRAVES, M. D.,

MONROE, LA.

Early medical literature contained many interesting facts, which read like thrilling fiction pertaining to "Heart Wounds." For Riolanus (1649) less than three hundred years ago opens his brilliant chapter on the heart with these words: "The heart is the chief and most noble organ in the body. It is the source of that life-giving nectar by the influx of which the vitality of each part of the body is renewed and cherished. The organ which is the first to be born and the last to die, and through which all other parts of the body live and move and have their being."

Other authors of this period used much the same language in describing the heart. Ambrose Pare in 1691 said: "The heart is the chief mansion of the soul, the organ of the vital faculty, the beginning of life, the fountain of the vital spirits, and so consequently the continual nourishment of the vital heat, the first to live and the last to die."

Paul Barbette, of Amsterdam, a contemporary of Ambrose Pare, in 1687, was of the opinion that "Wounds of the heart are always mortal and those that penetrate into the left ventricle kill suddenly. Those

so wounded live about 6, 12 or 20 hours, although there are examples produced to the contrary. A wound in the right ventricle permits the patient to live longer.

In 1604 Cabriolanus mentions a case in which he found a scar, and another in which he found an unhealed wound in the heart. He agrees with Fernelius that the heart can suffer a solution of continuity without death ensuing; and, he adds, lest anyone should think that these heart lesions were the cause of death, that both these persons were hanged.

While Tourby, in 1642, did an autopsy on a man who four years previously, had had a sword-thrust in the chest which caused a wound of the heart near the apex; the evidence of which was a cicatrix that could be demonstrated to all present.

In the succeeding centuries there is little to note till the time of Bonetus, and Morgagni. They established two facts: (1) That wounds of the heart were not necessarily immediately fatal; (2) that a sudden effusion of blood into the pericardium arrested the heart's action. In Bonetus' writings he relates the case of a young man, aged twenty-four, who bravely sustained an attack of seven others, but was at length wounded by a sword-thrust. He survived five days. There was a wound of the left lung and of the right ventricle of the heart. With this Morgagni compares two cases of heart wound. In one there was a free opening in the pericardium, and the blood escaped freely externally. This patient lived eight days. In the other the blood was retained in the pericardium and the patient died in a few minutes. He points out that the second patient did not die from hemorrhage, but from pressure on the heart. Thus, a hemorrhage within the pericardium is much more quickly fatal than a hemorrhage in most other places, even though it be far less in amount.

Ambrose Pare also says when he was in Turin he saw a certain gentleman who in

a duel received a wound under his left breast which pierced into the substance of the heart; yet, for all that, he struck some blows afterwards, and followed his flying enemy some two hundred paces, when he fell dead upon the ground. Having opened the body he found a wound in the substance of the heart so large as would contain's one's finger.

Literature recites that a pointed piece of stick was found in a pig's heart. The swineherd stated that more than six months previously he had prodded the unruly animal with the stick he used for driving the pigs. A boy in 1834 lived five weeks and two days after a gun powder explosion, which blew a piece of wood into his chest. At the post mortem a piece of wood three inches long and as thick as a cedar pencil was found in the right ventricle.

In 1825 a man aged fifty years, died in a hospital, who nine years previously was wounded by a knife wound of the left chest. The edges of the pericardial wound had become adherent to the chest wall and a firm fibrous cicatrix was found going through the whole thickness of the right ventricle in a line corresponding to the wound of the pericardium.

In 1827 a medical student in Paris was stabbed in the left chest. A jet of blood, as large as a pea, and air came from the wound. The flow of blood increased when the patient groaned. He recovered in twenty-eight days. The only treatment instituted was by bleeding. The blood pressure was the index for such procedure.

It may be concluded, then, that in wounds of the heart a free external hemorrhage is less dangerous than a sudden filling of the pericardium with blood. Wounds of the heart, too, under some circumstances do not allow the continued escape of blood. They close and heal as do certain wounds of the arteries.

Mr. Mansell Moullin showed a case at the Clinical Society in 1897 in a man who

had received a severe blow from the point of an elbow on the third left costal space in a football game. Twenty-five days later, the pericardium was opened in the left fifth costal space, and a drainage tube was inserted. In three hours six pints of thin dark fluid escaped through the drainage tube. This case was one of rupture of the heart without external wound, and slow accumulation of blood in the pericardial activity occurred. In the same volume of the Clinical Society's transactions a case of punctured wound of the right ventricle is narrated by Mr. W. G. Spencer. There was considerable external hemorrhage on the eighth and seventeenth days. Death occurred on the seventy-ninth day. There was a healed wound of the wall of the right ventricle, which was adherent to the scar in the pericardium.

Statistics compiled by Dr. Pool of New York, who has gone into the subject extensively, shows that prior to the Great War, in August, 1914, there were more than seventy-five operations on the heart, with the mortality of these operations slowly decreasing since 1896. The death rate before the war may be put at about 45 per cent. Adding the cases during the great war, which number over sixty, there is a certain total of at least three hundred eighty operations on the heart. Since the performance of Farina's operation there is no doubt, however, that there have been many more than four hundred operations on the heart to the present date, with causes ranging from a needle puncture to a bullet wound. Many cases, especially the fatal ones, have not yet been published. Of fifty-eight war cases of which he noted, forty-four of the patients recovered, and fourteen died—a wonderful record. The French surgeons seem to have been more successful in these heart operations.

Hartman reports a case where a soldier, wounded at Bapaumme, August 27, 1914, and taken prisoner by the Germans, showed very slight symptoms at first. In February 1915, there was pain, palpitation and

dyspnea. In August it became much worse, with frequent heart attacks with sensation of impending death. Roentgen-ray examination showed a bullet in the heart. He was then sent to Switzerland where he stayed till February, 1917. After being in various hospitals he reached Paris, April 7, 1917, where an operation was performed for its removal. A thoraplasty was done, the pleura opened, the projectile could be felt through the pericardium. The ball being located in the wall of the right ventricle was removed and recovery was satisfactory.

Dr. Jenckel also reports a case where a bullet was embedded in the posterior wall of the right ventricle. An operation was done six months after the injury, but had to be abandoned because the heart could not be brought forward enough to expose the posterior surface of the ventricle; the patient recovered. After waiting six months he operated again, and this time succeeded in removing the bullet, and the man made a good recovery.

October 17, 1914, Beaussenot successfully removed a bullet from the right ventricle of a French soldier's heart, which was inflicted during the war with the Central Powers. During the same war there have been several cases in which a bullet has been expelled from the ventricle of the heart, and the patients made satisfactory recoveries.

CASE REPORT.

Surgery of this important and vital organ of the body stimulates me to recite the following story with the unusual operation and its favorable results:

W. B., a colored male, 27 years of age, a laborer by occupation, was brought into the hospital October 2, 1928, and immediately transferred to the operating room. A hurried examination revealed a stab wound in the left chest over the third rib about three inches from the mid-clavicular line; it was a transverse wound about one inch in length, which had been inflicted about one hour previous to his entering the hospital. According to his version of the wound he and his estranged spouse were en-

gaged in a physical combat, when she drew from her apron pocket a knife with a blade about six inches in length, which was about three-fourths of an inch wide at the base, coming to a sharp point, and being slightly curved backward. They had been fighting for some time, he having inflicted many bruises upon the woman, when she, with rapid speed, drew the knife and thrust the blade into the left chest, producing the above mentioned wound.

Physical Examination: A healthy, well nourished, well developed negro man, lay upon the table with apparent comfort and ease.

Chest: Well developed with good action over both lungs. Diaphragmatic action was good.

The Thorax: Both heart sounds were heard, they were regular, but were faint, giving the impression of a far distant sound. Percussion and palpation showed a greater area of dullness of the heart. Respiration was slightly increased. There was no pathology of the lung or pleura noted by physical examination other than a transverse stab wound in the upper left chest over the third rib, two inches from the mid-clavicular line. The blood pressure was 70 over 40. Pulse rate 81, was very weak and soft, though regular and steady.

Subsequent History: Repeated examination revealed a peculiar type of pulse as found above, which were slow, soft, regular and with very little volume. Watching the patient it was several minutes before I could definitely determine whether I was dealing with a heart wound, or not. He did not show any evidence of marked hemorrhage. The mucus membranes of the lips were pink, no air hunger and no acceleration of the pulse, no shock, coma or languor, only a heavy feeling in his left chest, resembling that of a weight.

After due consideration, and contrary to the teaching of good surgery, I sterilized the area around the wound and then, a small sterile probe was passed into the wound until it came in close contact with the rib. I could detect that the continuity of the rib had been opened and that a small amount of blood was brought up into the field, with each ventricular contraction. There was still doubt in my mind as to whether the knife had passed through the rib to the heart muscle itself, or, whether a small artery, possibly an intercostal branch had been completely or partially severed giving rise to this character of hemorrhage. Forty minutes had now elapsed since I had begun my investigation. His pulse though not accelerated, was somewhat weaker, and his blood pressure was somewhat lower. I was then forced to make a decision, one which

I hoped would result for the best interest of the patient, and that was to enter the thoracic cavity in the exploratory manner to determine if the heart muscle had been severed.

Operation: A longitudinal incision about eight inches in length over the costosternal articulation was made. The third, fourth and fifth cartilages were severed, the flap was pushed back and with the rib shears the third, fourth and fifth ribs were also separated two inches to the outer side of the costo-cartilage junction. As the flap was pushed back it was found that the knife had passed longitudinally through the center of the rib, into the thoracic cavity. The thoracic window was then turned back, the pleura pushed to the left side, the pericardial sac was exposed. There was immediate collapse of the lung. An incision into the sac was at once detected, the sac being greatly distended. That the sharp point of the knife had not only passed through the pericardium, but, had penetrated the heart muscle itself, in the outer lower hemisphere of the left ventricle was evident. The sac was opened and blood clots were removed. With each ventricular contraction there was a distinct gush of blood. With my left I entered the pericardial sac, lifting the heart up into clear view in the operative field, with my thumb placed over the transverse incised wound of the left ventricle of the heart, which was about one-half inch in length, in order to control the hemorrhage by digital pressure, the process of closure was now begun. With No. 6 linen I placed six interrupted sutures in the heart muscle, while a No. 3, forty day, chromic catgut reinforced the underlying linen sutures, making a perfect closure. With the heart still in my hand I waited several moments to be sure that the sutures were dependable and secure enough to justify me to continue with the operation. My attention was then directed to the closing of the pericardial sac, which was done with interrupted linen, leaving a small cigarette drain. The ends of the ribs were brought together and affixed with double No. 3 chromic, as was also the ends of the cartilages. The skin was closed with interrupted silk worm.

Post Operative History: The patient was then transferred to the negro ward, and placed in bed, with directions to be kept in recumbent position, and to administer morphin sulphate as needed for cough, pain or restlessness. All liquids were to be prohibited by mouth for three days. The water balance was controlled by the intravenous administrations of salines and glucose. The volume of the pulse soon returned to normal, while the blood pressure was elevated within a few hours. He made an uneventful recovery, and was discharged from the hospital nineteen days later, October 21, 1928, as cured and since has

returned to his usual duties. Expansion of the collapsed lung was promoted by causing the patient to blow a horn.

Analysis of his chart shows the highest temperature reached was 102°, lowest 97°, with a mean temperature of 99.5°. Highest pulse 120, lowest 70, a mean pulse of 98. The highest total white count was 11,250, while the lowest was 7000.

DISCUSSION.

The thought arising in your mind is why didn't this man die since the left ventricular cavity had been entered by the blade of the knife. An explanation which seems most plausible and logical is that the knife passed through the center of the rib, parallel to its upper and lower borders. The heavy bony rib substance had a tendency to guide the knife in a straight line, thereby producing a punctured wound rather than an incised wound, as would have been experienced had the blade been permitted to complete the arc of the circle. The blood immediately filled the pericardial sac, pressing it against the chest wall, and thereby producing an automatic, anatomic and mechanical closure. Had surgical interference been deferred much longer death would have come from compression of the heart, as was shown by Morgagni in the report of his two interesting and instructive cases, which were shown to illustrate the comparative cause of death.

Contrary to the prevailing ideas, it is interesting to note that the heart, the organ as a whole, can be handled and manipulated with as much ease and freedom from injury as any other organ in the body, which was clearly demonstrated at this operation. The same aseptic care must be given the heart as would be given any organ of the abdomen, as death is caused by infection or hemorrhage.

Though now the field for heart surgery is limited and highly specialized, yet, modern science has revolutionized this advancing art, making it compare favorably with nature herself in the process of restoration and repair of the body, there-

fore, unfolding greater possibilities in this line of endeavor, which will be another avenue opened up for the conservation of human life.

THE BICORNATE UTERUS*

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It is not amiss that we should at times depart from the rather routine consideration of those conditions which are pathological, pathological from an acquired origin—infections if you will; and devote ourselves to the consideration of those conditions which are anomalous, “defects of nature,” so to speak. While these are rare (and we might add, “nature makes but few mistakes”) they make a most interesting volume. The malformations of the uterus makes one of the most interesting chapters in gynecology; and while its most serious, and truly vital, interest concerns the obstetritian we find it not without food for thought to us as gynecologists.

The reasons for this anomaly briefly stated—referring to our embryology—lies in the development of the ducts of Müller. If there is no abnormal development we find normal Fallopian tubes, a normal uterus, a normally developed vagina, etc. The nonfusion of the upper portion forms the Fallopian tubes; the fusion of the middle portion forms the uterus and the fusion of the lower the vaginal tract, etc. Then arrested embryonic development or unequal development in the two sides in any of these areas produces one or more of these malformations; and only those malformations as pertain to this middle portion, that portion forming the uterus, are now considered.

As for a classification of these congenital defects—there are many, several observers attempting one—that given by Graves is the clearest, which we quote:

*Read before the Louisiana State Medical Society, Baton Rouge, April 10-12, 1928.

- I. Uterus didelphys or uterus duplex separatus
(Complete separation of the two halves of the uterus with double vagina.)
- II. Uterus duplex bicornis cum vagina duplici
(Separation of the two bodies, but the two cervixes are fused, the vagina double.)
- III. Uterus duplex bicornis
(Like the preceding except that there is a single vagina.)
- IV. Uterus bicornis unicollis
(Body of the uterus is double but cervix fused into one, the bodies may not be widely separated but together so that fundus has a saddle shape.)
- V. Uterus septus duplex
(External form of uterus is entirely normal but entire canal divided by septum reaching from fundus to external os.)
- VI. Uterus subseptus unifornis
(A partial septum.)
- VII. Uterus biforis
(Cervix completely divided.)
- VIII. Uterus unicornis
(Complete absence of one-half of the uterus.)

We meet this anomalous condition unexpectedly, practically in every instance; particularly so in the non-gravid uterus. Without any particularly diagnostic signs from history, and usually on examination mistaking our findings for the more common conditions as fibroids or other more or less commonly found neoplasms. The obstetrician, it seems, discovers more of these malformations, particularly the uterus didelphys, than the gynecologist. In those cases where we have uterus didelphys or uterus duplex bicornis the factor of error in diagnosis is small, particularly so if vaginal examination is made with any degree of accuracy, for the cervix reveals the condition. In each case encountered by the writer the preoperative diagnosis was not confirmed by the post-operative. The rarity of the anomaly and the similarity of the findings with the usually found condi-

tions only lead to more or less confusion, when encountered. So taken unaware we, while making our inspection of the pelvis, hasten to reach a conclusion as to just what would be the proper course to pursue. In as much as practically no two conditions are alike we have no defined rule fixing our procedure in this emergency. We must not forget that sterility is not the rule in this condition; to the contrary they may be said to be prolific, and several observers make the statement that not only repeated pregnancies is the rule but often multiple pregnancies, and more than once with the same mother and viable children. It is recognized and reported that abortion, miscarriage (truly dangerous incidents) are not infrequent and, in fact, they are prone to same. It is, by the way, interesting to note that in my limited experience—bearing out the statement by Dannenreuther to the effect—that anomalies of the vagina carry sterility; and likewise confirming statement to the effect that neoplasms are the rule. In the so called infantile uterus, only an anomalous uterus, so frequently is there associated neoplasms—fibroids, cysts, etc.

Diagnostically this condition presents one extremely important feature and one that cannot be overlooked. If the diagnosis of the existent condition can be made it is possible for us to spare ourselves at sometime no little grief. It has been definitely shown that in these malformations of the uterus there occurs cases where there is an absence of the right kidney and a concomitant anomalous location of the single ureter. If the diagnosis is not made prior to operation more than ordinary care must be exercised. In reference to the possible absence of the right kidney the statement has been made, and by whom I do not recall, that up to the time this was made, possibly two years ago, no case had been found where the left kidney was wanting. Each year we find our profession forging ahead with strides that are marvelous,—something new almost daily advanced for the benefit of those seeking our

aid and each new advance entailing upon us more and more labor but fortunately we have within our reach those agencies which will safeguard us and our patient from this dangtr. These are our confreres in their respective specialties—the cystoscopist and radiologist. Infection is as likely in this condition as in the normally developed uterus, but there seems to be a predisposition for it to be unilateral. The infection of whatever type, specific or non-specific, invading one cornu or one compartment seems to limit itself to that segment and adjacent adnexa. Haematometra are not infrequent and unilateral and is designated as one of the very few and indefinite indications that this malformation may exist. Just here the thought is suggested that in dealing surgically with these conditions that the healthy side be not disturbed.

Each case must necessarily be a law unto itself—no definite preconceived plan of action exists to apply to these cases, though conservatism must be advised. The hasty ruthless resort to surgical interference for these anomalies, as anomalies alone, must be condemned. Far better close some abdomens with only removal of the appendix when the condition is found than do that which may not be indicated purely for the sake of being able to say that something was done. Myomectomy will prove many times preferable to hysterectomy though probably the latter may have to be done subsequently. Utriculoplasty is possible many times in these cases and might be preferable to hysterectomy. After all in many instances we should not be so much practitioners of economy as practitioners of conservative surgery. While the writer's experience comparatively speaking is very limited in the handling of this condition one case in question ended disastrously fifteen months after operation by the patient becoming pregnant and was returned to the sanitarium moribund and too late for any interference—autopsy was not obtained.

CASE REPORT.

Mrs. E. M., aged 18 years, married three years. Family history was entirely negative. Previous History: She had had the common illnesses of infancy and childhood. There was an indefinite history of a fever of two weeks duration when a child of about ten years of age. Menstrual History: Menses appeared at age of fourteen, regular and duration five days. She had had severe dysmenorrhoea since the onset. No leukorrhoea prior to marriage and for the past few months profuse. She lived away from her husband for some time, about one year, and her conduct during that time was questionable. For some time had been troubled with a black discharge after the regular flow, lasting for a few days. Menses never excessive. Present Illness: For the past five years had been having pain and discomfort in the lower right abdomen. This condition had gradually become more annoying. She could not say whether menses made it more severe. There was no nausea, no vomiting, no digestive disturbance. No discomfort at any time in the left lower abdomen. No urinary frequency, no dysuria. Had been having temperature but none for some weeks. Physical Examination: Blood pressure, S, 114; D, 80; T, 98.4°; P, 80. Mouth, etc., negative. Gland Sys., no adenopathy. Chest: Heart and lungs negative. Abdomen: Tenderness over the lower right abdomen; on deep pressure there was a small mass in the right iliac fossa, seemed not to be fixed. Gyn. Exam.: Uterus apparently larger than normal, did not seem to be so freely movable; a mass to the right of uterus, seemed to be fixed to the uterus. Cervical os showed only a slight mucoid discharge. No gram neg. diplococci found. Urine Exam: Negative. Preoperative Diagnosis: Cystic right ovary and fibroid of the uterus, interligamentous.

On opening abdomen a V-shaped mass was found, the part extending to the right was many times larger than the portion extending towards the left, having the consistency of a fibroid—to the right a tube and at the fimbriated extremity an ovary, cystic, the size of a small orange. To the left, low in the pelvis, the opposite part of the V to this just described and apparently normal in its consistency though small, a mass identical with a uterus. The accompanying tube was very small and short, only one and one-half inches long, and the ovary was the size of a large peanut. The two cornu had a common cervix. There was no induration present in this left half, no evidence of any infection. The right tube and ovary were removed and the right cornu removed by utriculoplasty. The interior of the right cornu showing haematometra. The laboratory report was endometritis, metritis, salpingitis chronic,

cystic ovary. Her recovery was uneventful, leaving the sanitarium on February 14—operated February 2, 1926. On the morning of July 5, 1927, was returned to the sanitarium practically moribund, expiring a few hours later. She was admitted with the history of being at term and was by examination practically nine months pregnant but the pains she was having were indefinite labor pains. The condition presented was more typical of an intestinal obstruction. From the time she became pregnant until the discomfort began she had not been attended by a physician. Autopsy was not obtained and the cause of her death not definitely known.

In this case the points of interest were that we had a bicornate uterus with a common cervix (uterus bicornis unicollis). The infection was unilateral and haemotomatra was present. She was not sterile but became pregnant in the remaining cornu with a rudimentary ovary and exceedingly small tube. Under the conditions of her death I regret not having removed this rudimentary tube.

CONCLUSIONS.

1. A condition evidently not so rare as is rarely recognized.
2. The embryology particularly as related to the congenital absence of the right kidney in these malformations is indefinite—the conditions are probably interrelated.
3. The diagnosis difficult owing to the fact that no outstanding well defined symptoms indicate the presence of the condition. When in doubt resort to roentgen-ray with lipiodol.
4. The condition not incompatible with general good health—and the normal sexual life. Usually discovered accidentally.
5. When hysterectomy resorted to be mindful of anomously placed ureter.
6. Conservatism is urged when handled surgically.

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THE OBSTETRICAL PATIENT.*

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Those of us who "tuned-in" on the radio dedication of the Cascade tunnel of the Great Northern Railroad were thrilled once more at the accuracy of modern engineering. The civil engineers who directed this great bore worked with instruments and methods which are so exact that the lines and grades from the opposite sides of a mountain range, eight miles through, varied only a few inches. The miracle of the modern telephone and radio made it possible for speakers and artists thousands of miles apart to take part in this dedication, while we sat by our fireside hearing every word and sound with a distinctness formerly impossible in an auditorium of moderate size.

Tonight I approach the varied problems of the obstetrical patient with deep regret that these cannot be considered with the mathematical exactness of a railroad engineer. While the development of scientific methods in the practice of medicine have been of great value in the study of disease, the physician is confronted with a variety of unknown quantities which defy the ingenuity of those who think in terms of mathematical formulae.

The development of the preventive idea in medicine led physicians who were interested in obstetrics to study more carefully the varied complications of pregnancy and labor with the hope of lessening the risk to mother and foetus. Prenatal care, as the management of pregnancy is now called, is probably the most important contribution to obstetrics of the past quarter century.

The objective of prenatal care has been stated by Williams as: "Such supervision of the pregnant woman as will enable her to go through pregnancy safely, to bring

*Read before the Orleans Parish Medical Society, January 28, 1929.

forth a normal living child with minimum danger, and to be discharged in such good physical condition as to be able to suckle it for at least the first months of its life." Ballantyne has well said: "We can only reach the unborn infant through the mother who carries him, and so the prenatal life of the child and the life of the woman in pregnancy are closely bound together and depend one upon the other."

VALUE OF EARLY EXAMINATION.

That the fundamental aim of pregnancy should be to secure a live child which will have a reasonable chance of reaching adult life is axiomatic. Yet, at present, this ideal is not reached in a very large number of conceptions.

Spontaneous abortions frequently occur as the result of some physical condition such as a retroflexed uterus, an unhealthy or over-strenuous occupation, improper hygiene, a severe toxemia of early pregnancy, or some infectious process. A carefully taken history, laboratory and physical examination early in pregnancy frequently will lead to the discovery and correction of unfavorable conditions with a reduction in the number of abortions.

The early recognition of certain diseased conditions such as tuberculosis, heart disease, nephritis and syphilis is of great importance. Infections of the birth canal with bacteria, parasites, or fungi, should be eliminated.

The presence of maternal conditions which may cause dystocia should be detected early in pregnancy. These include contracted or deformed pelvis, tumors and displaced organs.

NAUSEA AND VOMITING.

More than half of the women seen in private practice suffer more or less from nausea and vomiting of pregnancy. By careful management the vomiting is usually stopped and the nausea reduced. Dry food in moderate amounts at frequent intervals is usually of considerable value. Liquids should not be given within one-half hour

before food or one and one-half hours after. The smell of cooking is a common source of trouble. Hot drinks or charged water may be retained when the patient cannot use plain water. Effervescent triple bromide is of value in lessening the nervous symptoms. Moderately severe cases are usually controlled by resting the stomach and administering retention enemata which contain fairly large doses of bromide. Nothing should be given by mouth for twenty-four hours or until vomiting stops. Thereafter dry type of diet may be given in small amounts every three hours. Retention enemata with smaller doses of bromide should be continued until a sufficient amount of fluid is taken by mouth. The severe or neglected cases with rapid pulse, dehydration and acidosis require intravenous glucose in rather large amounts. Our results have been more satisfactory when insulin is used with the glucose.

The Columbia Hospital technic is as follows:

Patients with severe vomiting of pregnancy are given intravenously 1000 c.c. of 10 per cent glucose solution to which 50 units of insulin are added in the reservoir of the infusion apparatus. This gives a proportion of 1 unit of insulin to 2 grams of glucose. Formerly, a proportion of 1 unit of insulin to 3 grams of glucose was used but we get quicker and more satisfactory results with the larger amount of insulin. The solution should be administered slowly. From one to two hours time is taken to complete the intravenous injection; two hours is better than one. Great care must be exercised so that the solution enters the vein at body temperature. A cool solution may cause a chill. In the experience of the Staff at Columbia Hospital with well over 1000 intravenous injections of glucose in all types of hospital patients there has been no chill that could be attributed to the glucose. When a chill has occurred it has been caused by some other easily eliminated factor. If, as occa-

sionally happens, a patient with severe vomiting of pregnancy is found to have lowered blood chlorides, we mix 500 c.c. of 3 per cent sodium chloride with 500 c.c. of 10 per cent glucose. This reduces the amount of glucose by one-half, and the amount of insulin should be reduced proportionately. Sometimes one intravenous injection is sufficient. When a patient has been vomiting for a long time, is excessively dehydrated, and shows a marked ketosis and acidosis, repeated injections should be given, sometimes as often as every eight hours, until the desired therapeutic result is secured. We are certain that no harm has ever resulted to any patient from these procedures, and no obstetrical patient has had an insulin reaction.

Termination of pregnancy may be necessary if the patient continues with a rapid pulse and develops mental symptoms in spite of active medical treatment.

FOCAL INFECTION.

Many of us agree with Talbot that there is much evidence associating focal infection with the toxemias of pregnancy. Curtis and others have given laboratory proof of a relationship between infection and repeated abortions. There is no longer any doubt regarding infected teeth and tonsils being a medical hazard. I believe that one should eliminate chronic foci of infection whenever possible. All questionable teeth should be roentgen-rayed. After the first trimester with its nausea and vomiting has passed, teeth may be extracted or tonsils removed. It seems best to do this midway between calculated menstrual dates.

CONSTIPATION.

Many women have a tendency to constipation during pregnancy. I have found the use of liquid petrolatum and milk of magnesia very satisfactory for most patients. It is quite important to keep the bowels active since poor elimination predisposes to toxemia. Fruit is a natural laxative but many women cannot use it during the first trimester and it may cause heart burn at any time. Citrous fruits

appear to have some advantage over those containing malic or tartaric acid.

EXERCISE AND REST

Exercise is required to keep the body in a healthy condition. The woman who does most or all of her housework usually needs no special exercise—rather, she must be warned against doing too much lifting, etc. Walking and riding in the fresh air is needed to rest her from the house. Massage and the less strenuous calisthenic exercises are beneficial.

Every pregnant woman should have frequent periods of rest so as to avoid fatigue. I usually instruct the patient to lead her normal life but to be moderate in everything. Just as she should stop eating before reaching her capacity, she should secure rest before she feels tired. Naturally she should be warned against the more strenuous forms of play as well as work.

ROUTINE TESTS.

The importance of urine tests in pregnancy has long been recognized. More recently it has been observed that it is equally important to follow the blood pressure. During the past ten years I have learned that routine weighing gives information of very great value. Frequently there will be a rapid increase in weight, due to retention of fluids in early toxemia, before there is a material change in blood pressure or albumin in the urine. A rapid increase in weight is a danger sign which should be investigated carefully in each case. If it is due to over-eating the diet should be regulated; if due to retained fluids, elimination should be increased by frequent doses of magnesium sulphate. The elimination of fluids may be increased also by putting the patient to bed for a few days.

I have obstetrical patients report at the office for tests of urine, blood pressure and weight twice each month during the earlier months; every ten days during the eighth month; and every week during the ninth month. They are also asked to report any unusual signs or symptoms by telephone.

SPECIAL MEDICATION.

Patients living in a goiter area should have small doses of iodine during the entire period of pregnancy and lactation. My studies of thyroid function and pregnancy indicate that the basal metabolic rate of pregnant women with normal thyroids will vary little, if any, when sufficient iodine is administered. It is my belief that the increased rates reported by several observers are due to an abnormal function of the gland rather than the growth of the foetus.

The calcium requirements of the rapidly growing foetus tend to drain this salt from the mother. This is usually evidenced by deterioration of the teeth, falling hair, and pain in the legs. If sufficient calcium cannot be obtained from milk and vegetables, calcium lactate or calcionates in some form should be prescribed. Small doses of parathyroid should aid calcium metabolism.

Other medication may be indicated for special conditions which develop during the course of pregnancy, or for chronic diseases which antedate the pregnancy.

EFFECTS OF OCCUPATION.

The entry of large numbers of women into industry requires that a careful study of industrial hazards be made. Thus far only a few reports have been published. However, the following, quoted from Thompson's book, "Occupational Diseases," gives much food for thought.

"Oliver found that married women who formerly were permitted to work in white lead production almost invariably miscarried, or bore stillborn infants, or infants that died at an early age of convulsions. It was this circumstance which attracted his attention to the hazards of lead work and led to the admirable investigations which in England have resulted in so much beneficial parliamentary control of the entire lead industry. In the stillborn infants Professor Bedson determined traces of lead in the kidneys and liver.

"Of 141 pregnant women who worked in lead factories in France it was found

by Constantin Paul that 82 aborted, 4 gave rise to premature birth, 5 to stillborn infants. Of 50 infants born living at term, 35 died in two years. Thus only 15 children of 141 pregnant women lived beyond the third year."

"In the French Department of Labor Report on Industrial Poisons, made by M. Tardieu in 1905, among 1,000 pregnancies in lead workers, 609 terminated in abortion."

"Oliver found that of the children of paint-grinders, 40 per cent died of convulsions during the first year of life."

Deacon reported 101 pregnancies occurring among women employed in an English munition factory. As soon as pregnancy was determined the women were placed on light work and no bad results were observed. He believes that among this group of women, as a result of careful supervision, good food and regular exercise, their babies were stronger than usual for this class of women.

TUBERCULOSIS.

Tuberculosis is as much a contraindication to marriage as gonorrhea or syphilis. Similar rules should apply. Women, in particular, should not marry until some years after all signs of active tuberculosis have subsided. Bacon has estimated that 33 per cent of the tuberculous women who become pregnant will have died of tuberculosis within a year after delivery. Of the advanced cases who survive the pregnancy about 50 per cent will have died within a month after delivery. It is, therefore, evident that pregnancy is a most dangerous complication of tuberculosis.

Tuberculous women who contemplate marriage should be instructed regarding the dangers of a recurrence of pregnancy. They should be made to appreciate the necessity of receiving the maximum of rest, fresh air, good food, and expert medical supervision during the entire period of pregnancy, labor and the puerperium and for many months thereafter. In many in-

stances they should not attempt to nurse their babies. The married woman who develops tuberculosis should be advised against pregnancy until several years after all symptoms have subsided. Should she in spite of advice become pregnant, sanatorium care is advised as few women will receive the necessary rest, fresh air, and proper diet at home. An attempt should be made to bring her through the pregnancy with the minimum of danger. A healthy child may be expected, but it should be removed from the mother at birth. Nursing is rarely if ever advisable in these cases as it greatly reduces the chances of the mother and exposes the child to a practically certain contact infection. Therapeutic abortion should be reserved for consideration in the cases where with the absolute rest in bed in early pregnancy there is a continuation or gradual increase in the afternoon temperature. Pregnancy will kill most of these very active cases before viability. For such women the prognosis is bad regardless of the treatment.

HEART DISEASE.

Hamilton and Kellogg discussed cardiac disease and pregnancy at the Minneapolis meeting of the A. M. A. Their studies indicate that only about 1 per cent of all pregnant women have seriously injured hearts. Twenty per cent of the maternal deaths at the Boston Lying-In during a four-year period and 28 per cent of maternal deaths at the Faulkner Hospital, Boston, during a seven-year period were furnished by patients with seriously injured hearts. Mitral stenosis is the usual cause of trouble and a very high percentage of women with this condition will die shortly after the first or second pregnancy regardless of medical care. This complication is most often found in patients who have had chorea or rheumatism. Every obstetrician should be able to recognize an abnormal cardiac condition even though he may not make an accurate diagnosis. Responsibility for the heart should always be shared with a competent internist. May I urge that the management of cardiac

women during pregnancy be along the lines outlined by Hamilton and Kellogg in their paper which was published December 22, 1928, in the J. A. M. A.

SYPHILIS.

Syphilis has long been recognized as one of the most important causes of intrauterine fetal death, but only within recent years have studies been made which give any suggestion of its frequency. Perhaps the most extensive American study has been made by Williams at Hopkins. In his clinic 2.48 per cent of whites and 16.25 per cent of blacks had a positive Wasserman reaction. His observation indicated that the presence of a positive Wassermann does not necessarily mean the birth of a syphilitic child; and that efficient treatment instituted by the middle of pregnancy gives excellent results so far as the child is concerned. Unfortunately, a negative Wassermann may not prove the absence of syphilis.

In private practice it is not practical or necessary to have a routine Wassermann on every woman, yet one should be obtained if the history is the least bit suspicious. Every stillbirth should be investigated for possible syphilitic lesions. I have had a strongly positive Wassermann reaction where there was no reason to suspect syphilis. Thorough treatment will enable such women to deliver healthy children. The children of syphilitic parents should of course be carefully observed during the first years of life and treatment instituted if any signs of the disease appear.

GONORRHOEA

Gonorrhoea is a serious complication of pregnancy and requires careful treatment. Not only is the inflammation of the acute stage more extensive and severe, but the acute process lasts much longer. The treatment is more difficult owing to the danger of causing an abortion. However, most of the gonorrheal infections with which we have had to contend during pregnancy are chronic. Frequently the condition is not diagnosed until the puerperium, and then

not until the baby's eyes are infected or the patient develops a salpingitis.

Formerly, ophthalmia neonatorum occurred commonly in the babies of mothers infected with gonorrhoea. It was the great cause of blindness in children. Today, the routine use of the Crede silver treatment of the babies' eyes after birth has largely eliminated these birth infections. However, there is still danger of the baby becoming infected subsequently unless the infected mother has been carefully instructed regarding cleanliness and personal hygiene.

It is important that all of these cases be detected and treated. At present that is impossible, but whenever there is a suspicious history a single negative examination for the organism should not be considered sufficient proof of a cure. Repeated examinations are indicated. A perfect nursing technic will reduce the danger of crossed infection to the minimum. The lighting up of an acute gonorrhoea will usually be noted in the first days of the puerperium. This is favored by the presence of other organisms such as streptococci and staphylococci. A chronic gonorrhoea is the usual cause of the late puerperal fevers coming on during the second week of the puerperium, and rarely before the tenth day. These late infections frequently cause one child sterility as they so commonly result in pus tubes or an obliterative peritonitis. An acute gonorrhoea contracted during the puerperium runs a violent and destructive course.

ANEMIA OF PREGNANCY.

Routine blood examinations during pregnancy indicate that most expectant mothers have a moderate anemia. However, this apparently is not a real anemia in most instances as there is usually a rapid return to normal following delivery. Rarely one discovers a rather severe degree of anemia and active therapeutic measures may be indicated. Two of my patients who are relatively anemic at all times show alarming drops during pregnancy. One had a hemoglobin of 31 per cent Dare and a red count

of 3,150,000 at the beginning of the ninth month. It was believed that this degree of anemia might prove injurious to the foetus and she was given 500 c.c. whole blood. Within a short time after the transfusion she went into labor and a few hours later delivered a 5 lb., 12 oz. baby girl. A blood count just after delivery confirmed the clinical observation that delivery had been accomplished with practically no loss of blood. Two weeks after delivery the hemoglobin was 56 per cent Dare and R. B. C. 4,450,000. It is interesting to note that both of these mothers are in blood group III, while their babies are in Group I. A comparison of blood counts at the end of pregnancy and at different times during the puerperium shows that there is a rapid increase in haemoglobin and erythrocytes following delivery. Since this is a constant and rather marked increase, it is believed that an increased blood volume may account for some of the apparent anemia of pregnancy.

NEPHRITIS AND NEPHRITIC TOXEMIA.

After syphilis, nephritis is the next greatest cause of intrauterine death during pregnancy. It is perhaps a more dangerous condition than syphilis in that it greatly increases the dangers to the mother as well as to the foetus. Chronic nephritis is a contra-indication to pregnancy, but since many women with nephritis become pregnant it is important that the kidney condition be discovered early and carefully followed throughout the pregnancy. In addition to the routine urine analyses kidney function tests will aid in determining the amount of kidney impairment. It must be remembered, however, that during pregnancy kidney function tests may be reduced even in the presence of normal kidneys. Blood pressure readings should be made at frequent intervals throughout the pregnancy as in these cases the variations upward in blood-pressure are of great significance.

Nephritic toxemia must be differentiated from the pre-eclamptic toxemia since the treatment is very different. With an im-

pending nephritic toxemia the pregnancy must be interrupted as the only means of securing a live child. Too long a delay also means so much destruction of kidney cells that the injury is permanent; the blood pressure continues very high, and the patient's life is materially shortened. On the other hand, pre-eclamptic toxemia yields to eliminative treatment, and following delivery the blood pressure soon returns to normal.

CONCLUSION.

Adequate prenatal care has made it possible to carry our patients through pregnancy with a minimum risk. During pregnancy we must plan for the delivery. Fortunately, most women have a relatively normal childbirth and can be given home care without undue risk. However, it is important to recognize possible complications early so that adequate arrangements may be made before the life of either mother or child has been endangered.

Gradually American women are learning that much of the present pain, mortality

and invalidism is unnecessary when proper care may be had during pregnancy and labor. More skilled care in hospitals has reduced the risk of complicated labor, but the average woman does not, and at present cannot have the medical and hospital care that you and I wish for our wives. Thousands of American women are so far removed from a hospital that even difficult operative deliveries or other serious complications must be attempted in the home under the most unfavorable conditions.

The motion picture camera makes it possible to demonstrate all essential points in the various types of delivery. Tonight I will show you four reels of film which will illustrate the management of normal labor, various types of forceps, version and breech extraction, and finally the cervical type Cesarean section. The management of labor must be varied according to the needs of the individual patient and the obstetrician should be prepared to meet any possible emergency.

THE APPLICATION OF SCIENCE TO THE PRACTICE OF MEDICINE.—Medical practice even today, as conducted by the rank and file of the profession, is overloaded with empiricism and with methods that are maintained, especially in therapeutics, by the force of tradition, sometimes in the face of well-established facts that should bring something better in their place. Much of medical practice has been developed by gallant attempts on the part of physicians to meet the needs of suffering humanity by means that have been improvised where science has nothing to offer or where scientific facts and principles have not yet penetrated into the realm of practical medical knowledge.

The life of the successful physician is usually full of activity and in the majority of instances, especially away from the centers of medical progress, practice soon falls into a routine which is not often seriously disturbed by innovations. The younger men, fresh from the schools, may resist the plan of practice of their elders, and so bring down upon themselves and upon their schools disfavor. Many succumb to the force of example and precept of their older colleagues. They may soon learn to do without the scientific basis that had been given them more or less thoroughly. In order to prepare students of medicine to resist in

after life the force of empiricism and tradition, scientific habits of mind must be firmly driven in. The result of an attempt to do this is often the cry from the profession that medical education has become "too scientific," whatever that may mean. A sympathetic attitude between the investigator in the medical sciences and those whose task it is to apply the results of research to the welfare of the individual patient is desirable and indeed essential. An antagonism, however, may exist on the part of the workers in science because of an apparent lack of appreciation by the physicians of the facts and methods of science, and on the part of the physicians because of a feeling that the results of scientific research are impractical and that scientific workers fail to appreciate the complex and varied problems constantly encountered by the medical practitioner.

This antagonism, however, is being rapidly replaced by mutual respect and collaboration wherever conditions have been set up that favor contact and coordination of clinicians and investigators. A group of workers is developing that belong both to research and to practice, and members of this group are serving as the middle men, so to speak, between science and practice.

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CONTRACT PRACTICE.

Medical ethics are based on the oath of Hippocrates, which first appeared some 400 years before the birth of Christ and which has been followed by physicians for nearly 2,400 years. They are a moral creed which defines and governs the relationship between student and teacher, practitioner and patient, the profession and the public. Primarily the Hippocratic oath was intended to protect and safeguard the patient but in the evolution of the profession, medical ethics has broadened, and expanded into a tenet which guides the physician in all his professional contacts. The passage of time has rendered obsolete portions of the oath. No longer does the student consider the

teacher "equally dear to me as my parents" nor would be deem it necessary "to share my substance with him." The surgeon does not consider as binding the injunction "not to cut persons laboring under the stone." On the other hand the basic and fundamental principles of the oath is still the star guiding the medical man—"follow that system of regimen which according to my ability and judgment I consider for the benefit of the patient."

Contract practice is defined in the Principles of Medical Ethics of the American Medical Association as follows:

"It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interfere with reasonable competition among the physicians of a community. To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession."

The first section of this definition is specific and is a fundamental of the Hippocrates oath: take proper care of the patient. The second portion, referring to reasonable competition among physicians, has been added centuries after the original oath was promulgated. It is a section which is tinged with doubt and uncertainty. The whole question of contract practice is consequently undefined, indefinite and hazy. There is certainly nothing unethical in the employment of a physician to look after the health of the boys or girls in a boarding school, even if that physician be under contract. Many of the large clinics have under contract salaried internists and surgeons. Hospitals have contractual relations with their roentgenologists and pathologists. The Army doctor virtually contracts to take care of those patients in whatever locality he is ordered to take his post. Innumerable further examples of well recognized legitimate contract practice might be enumerated. Odious and unethical contract practice, on the other hand, is seen when the physician assumes the

charge of such large number of individuals that he is unable to care for them with any degree of exactitude, thoroughness, or reasonable scientific adequacy. He violates the Hippocratic oath because he is bound to neglect the sick man, often for reasons other than mere physical inability to render proper service.

Between the two extremes of undoubted ethical and unquestionable unethical conduct of contract practice lies the realm of doubt. Who is to judge of just what is proper or improper in contract medicine? There are no definite, distinct nor sharply margined limits, drawn up by any body or group of physicians. The distinction would seem to be largely quantitative. It would appear that the enigma should be solved and the question could be elucidated only by those in intimate contact with a specific instance of presumed breach of the principles of medical ethics. Physicians in a given locality would know the conditions of practice in the community, they would be acquainted with the personality, reputation and previous record of the man who may or may not have violated the ethics of his profession, and they alone should judge, fairly and unpartially, if the individual is treating honestly his patients and acting squarely with his fellow practitioners, if he be doing to them as he would be done by.

NEW PRESIDENT OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION.

Dr. Hugh Agnew Gamble was selected by the House of Delegates of the Mississippi State Medical Association to be the President of this organization for the coming year. Dr. Gamble is one of the best known and popular physicians in the western part of the State. Practically ever since he graduated from Tulane University in 1904 Dr. Gamble has practiced at Greenville, where he has achieved a splendid reputation as a most competent, careful surgeon,

a skilled physician and a man of force and personality.

In addition to the prominent part he has played in the Mississippi State Medical Association, the new president is also an active member of the American Medical Association and the American College of Surgeons. He has always been interested in organized medicine and has more than borne his share of the burden and of the responsibilities that necessarily must arise in the various county and state and national medical organizations. The House of Delegates has done wisely in selecting such a splendid representative of the medical profession to represent the Mississippi physicians for the coming year.

THE TREATMENT OF VARICOSE VEINS.

Many years ago varicose veins were treated by the injection of blood coagulants. Naturally the effort failed, because it is a question not of coagulation of the blood but of producing reaction in the vein wall in order to induce coagulation in the venous canal. In 1911 sclerosing solutions were first used to produce thrombosis and obliteration of varicose veins. Since then a large number of observers have combined to show that this treatment is probably superior to surgery. The patients get well with little or no discomfort. The treatment is ambulatory and there is little expense connected with the injections.

Two considerations must be borne in mind when one discusses the treatment of varicose veins with sclerosing solutions: first, the safety of the method and second, the most satisfactory solution. That the method is safer than operative procedure is shown by the report of Kilbourne,* who has studied statistically 4,607 cases treated by operation in which the veins were excised. One patient in 250 died; whereas among 50,000 treated by injection the mortality rate was less than one in 4,000. Re-

*Kilbourne, Norman J.: Treatment of varicose veins of the leg. J. A. M. A., 92:1320, 1929.

currence after operation averages 30 per cent, but after injection only 6 per cent. The kinds of solution that has been used to inject in the vein include sodium bicarbonate, sodium salicylate, biniodid of mercury, quinin, glucose, sodium citrate, and sodium chloride. According to Melkon† very satisfactory results have been attained with sodium salicylate, metaphen, sodium chloride, and quinin hydrochloride with urethane. Logefeil and Dahlstrom‡ believe that the most satisfactory solution that can be used, is invert sugar (invertose). They claim that it is practically painless, non-toxic, and sloughing does not occur when the solution is accidentally injected outside the vein. Organization becomes complete while canalization and recurrence are rare. They have noted no general reaction.

The injection treatment seems to be definitely established. This common and distressing malady, varicose veins of the leg, seems to be handled well by any of the irri-

†Melkon, E. A.: Treatment of varicose veins by the injection Method. *New England J. Med.*, 200:690, 1929.

‡Logefeil, R. S., and Dahlstrom, A. W.: Sclerosing treatment of veins by chemical irritants. *Am. J. Med. Sc.*, 177:690, 1929.

PROFESSIONAL ETIQUETTE.—If a professional man knows that certain forms of self-advertisement are illegitimate and contrary to the accepted traditions of his fellow-practitioners he can refrain from treading close to the border-line. Every profession has its members who sail close to the wind; their colleagues know them and form their own opinion. In this matter of advising on technical questions in journals the legal profession has probably had some increased demand or opportunity lately in view of the revolution in the law of conveyancing and real property which has sent back to school again many men of long experience and adequate instruction in the older law. The medical profession is here not quite in the same position as the legal. Advice upon health is a personal matter; the patient

tants mentioned above, although the report concerning the use of invertose would seem to point to a solution which can be used more favorably than any other.

GROUP INSURANCE

Attention is called to the communication from Dr. P. T. Talbot, secretary-treasurer of the Louisiana State Medical Society, at the end of the section devoted to Louisiana news. The members of this organization should take advantage of the opportunity of securing insurance at a most satisfactory rate. They can only do this, however, if a majority of the membership will agree to the terms of the insurance company before June the fifteenth. This opportunity is afforded only to those doctors belonging to organized medicine. It represents a small by-product of co-operation in medicine, the most important features being so important and so beneficial to the physician that they need no enumeration.

Take advantage of this splendid opportunity; send in your acceptance at once; do not let inertia alone defeat the plan, a scheme of insurance which all thinking men agree is most advantageous to the insured group.

must be seen by the practitioner, whereas in many cases a barrister might be able to give an opinion—upon the interpretation of a clause, for instance, or upon the inference to be drawn from correspondence—without an interview. Moreover, questions of health are usually more urgent than questions of legal rights; a patient may be unwilling to wait a week for the printed reply. In other respects there is no great difference between the official standards of the Bar Council and the General Medical Council. In both professions there will be members, junior as well as senior, who are a law unto themselves. The standards cannot be upheld unless they are supported by the general approval of the rank and file. If they have that approval, they are entitled to the loyal obedience of all.—Editorial, *Lancet* (London) Jan. 19, 1929, p. 145.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL MEDICAL STAFF MEETING APRIL 16, 1929

The first group of cases discussed were presented by Dr. P. H. Jones. Three members of the same family, the father 62 years of age, the daughter 16 years of age, and the son 19 years of age were shown with the diagnosis of beri beri. These people were natives of the swamps of Louisiana and had been living chiefly on rice, with some little green vegetables about once a week. They had had no meat nor milk in their diet. The father was a moss picker by occupation.

The first member of the family, a son, became ill about March 10 with weakness and inability to walk. He died at home on the eighteenth day. Then the father became ill, and following him, the son and daughter. These three were admitted to the hospital.

In each of these three cases the illness began with a sensation of numbness in the abdomen, then in the feet and legs. Gradually the feet began to swell, and dyspnea developed. Then following the inability to walk.

The father had at no time been as ill as the others. He was ambulatory when shown. He also had the least amount of cardiac involvement. The daughter showed slightly more cardiac involvement, with edema of the ankles, and the son had a very severe cardiac disturbance which almost proved fatal.

Electrocardiograms on all three were essentially negative. Feces examination showed the presence of hookworm ova in all three cases. The gastric analysis showed an achlorhydria in the son, while it was apparently normal in the other two. There were no other abnormal laboratory findings, except a slight anemia.

The neurological examination showed parasthesias over the lower extremities, with lost or diminished reflexes, and flaccid paralysis in the cases mentioned. The muscles were quite tender to pressure, and there was a definite delayed transmission of the painful impulse.

In the discussion which followed the case Dr. Cazenavette spoke of the marked neuritis. This neuritis was most marked in the boy, being more marked in the lower than the upper extremities, a rather typical finding. Dr. Lewis asked regarding the frequency of an achlorhydria in such cases, to which Dr. Jones replied that the only other cases he had any information on were three cases seen by Dr. Turner last year, one of which had an achlorhydria. In this condition he demonstrated a slight pigmentation on the hands of the boy which might have been regarded as a "pre

pellagrous" condition. In reply to Dr. Love's question, Dr. Jones said that the cases had been treated with a pellagra diet plus concentrated vitamins in the form of vitavose.

Dr. S. J. Lewis then presented a case of syphilitic myelitis in a colored male negro. The onset of the condition had begun with weakness and numbness in the legs which had gradually progressed until his legs became stiff and he had difficulty in walking, using a stick to help himself.

Upon examination his heart was found to be slightly enlarged. There was a positive Babinski and ankle clonus on both sides. The patient walked with a spastic gait, using a stick. Urine examination and blood count were negative. The blood Wassermann was weakly positive. The spinal fluid showed 125 cells, chiefly small lymphocytes. Globulin was + + and there was a luetic colloidal gold curve. The spinal fluid Wassermann was positive.

Dr. Unsworth commented upon the unusual fact that there had been no bladder nor rectal involvement. He advised against the use of arsenicals, and thought he would advise malaria inoculation. Dr. Cazenavette elicited the fact that the patient had had some slight bladder involvement from which he had recovered. Dr. Daspit said that he was certain that mercury by mouth had no value at all in such cases. He thought the proper therapeutic course would be to saturate the patient with mercury by rubs or injection, and then use the arsenicals gradually.

The third case was one of purpura hemorrhagica in a nine year old white male. The clinical record was presented by Dr. de la Housaye, the case having been a fatal one.

Upon admission the child showed several ecchymotic spots over the body, a marked anemia, and a palpable liver. The condition is said to have developed following a circumcision at which there had been quite free hemorrhage. There had been no other external hemorrhage. He had had asthmatic attacks since 7 months of age.

The blood count showed 1,250,000 erythrocytes, 2800 leukocytes, 40 per cent hemaglobin, color index 1.6, platelet count 43,500. The coagulation time was 3.5 min., and the bleeding time on one occasion 7.5 min. and on another 16 min. The gastric analysis showed free HCL 32, total acidity 104. The blood calcium was normal. The stools were negative.

The patient received many transfusions with some improvement but finally lost ground rapidly and died.

Dr. Love mentioned that the mother had been an excessive bleeder until the birth of this boy. He asked regarding the relative value of citrated and whole blood for transfusion in such blood dyscrasias. Dr. Musser asked why splenectomy was not considered. Dr. de la Houssaye replied that it had been considered, but the patient had never been a proper surgical risk. Dr. R. Lyons thought splenectomy the method of choice in such cases, with transfusion of whole blood next best. The whole blood transfusion was stated to be definitely more difficult than the citrated method. Dr. J. H. Smith remarked upon the ease with which he had seen a whole blood transfusion done recently with an apparatus, the name of which he had forgotten. Dr. C. Jamison thought the citrated method the more practical method and the method of choice, adding that no one had ever given any definite reasons for believing that the whole blood method was better than the citrated methods. He thought that the splenectomy had been delayed too long in this case.

The final case was presented by Dr. Mogabgab. It was one of aneurism of the thoracic aorta in a middle aged white female. The aneurism had eroded through the sternum and was presenting as a large pulsating tumor mass about the size of a large grapefruit.

WILLARD R. WIRTH, M. D.

TRANSACTIONS OF THE THE CHARITY HOSPITAL SURGICAL STAFF.

The regular monthly meeting of the surgical staff was held on April 17, 1929, with Dr. P. Graffagnino presiding as chairman. The usual monthly statistical data of the deaths occurring in the various surgical departments were presented. These statistics were approximately similar to the ones during the previous months. It is anticipated that at the completion of the meetings—for the year—the entire group will be collected and published in these columns.

The first case of the evening was that of a very fat negro female, weighing in the neighborhood of 250 pounds. This patient was admitted to the hospital with a strangulated incisional hernia in the region of the umbilicus. A number of years previously she had been operated for an umbilical hernia, and sometime later for some pelvic pathology. In her present state she presented the picture of a very sick patient. After some difficulty the operation was completed, without the necessity for resection. However, a stormy post-operative course was climaxed with an acute suppression of urine and she died. Autopsy revealed acute and chronic kidneys, paralytic ileus, (with necrosis and gangrene of the ileum), and chronically diseased spleen, liver, and heart.

The case was very liberally discussed, and many interesting points were brought out by Drs. Maes, Danna, Rives, A. C. King, Gage, and Graffagnino.

A white female child, 10 years of age, who died following a very long illness was next presented. This patient had been very thoroughly worked up by the pediatric department, and finally a diagnosis of liver abscess was made. The child died following operation; and a complete autopsy showed an "appendiceal abscess, ruptured gangrenous appendicitis, multiple liver abscesses, general peritonitis, hydrops of the gall-bladder, multiple abscess of the spleen, pericarditis with effusion," and the various other usual findings in a case of septicemia.

This case presented several interesting features and was discussed by Drs. I. M. Gage, and Graffagnino.

The third case brought forth an interesting discussion on the subject of emergency laminectomies.

A young colored male was shot in the region of the lower cervical spine. Paralysis followed the injury immediately. The usual signs and symptoms observed in these cases were present. The presence and absence of pressure over the jugular veins during the first spinal puncture showed a variation in the reading of from 32 to 18, the latter when the pressure was released. However, after this there seemed to be no difference in the pressure under these circumstances. In this instance an exploratory laminectomy revealed a hopelessly destroyed cord at the site of injury. Death followed the completion of the operation.

The case was discussed by Drs. Anderson, Cook, McIlhenny, M. J. Lyons, Rives, Maes, and Ochsner.

FRANK L. LORIA, M. D.

TRANSACTIONS OF THE PRESBYTERIAN HOSPITAL CLINICAL SOCIETY.

The regular monthly meeting of the staff was held on April 25, 1929, with Dr. John W. Lindner presiding. After the usual order of business several interesting cases were presented and liberally discussed. Those deaths which presented interesting problems were particularly analyzed.

An interesting case was that of a very large toxic adenoma. The case was that of a white female about 50 years of age. The growth was massive and the toxemia pronounced. The patient died about 48 hours following operation.

This case was liberally discussed by Dr. Loria, who stressed the points of (a) not operating on such cases until the basal metabolism is normal or nearly normal, and (b) the "stealing" of the gland which helps considerably in the final re-

sults. Dr. H. R. Unsworth explained that these cases were primarily and basically neurological problems; and that the neurologist had a certain responsibility in helping to cure these cases.

Following this Dr. H. R. Unsworth presented an interesting case of myelitis resulting from an infection. He explained that the condition was very analogous to poliomyelitis, wherein lay the difference, and the encouraging fact that these cases recover. In this instance the patient was present, and his condition was observed.

One of the most interesting cases the writer has ever heard of was next presented by Dr. E. A. Richard. This was a case of esophageal fistula of the lower third of the esophagus with a trans-thoracic fistula. Dr. Richard presented the history of this case, as the case could not be present. The patient was a white male, 7 years of age, who had a lobar pneumonia, developed an empyema, and following the thoroctomy began the discharge of food through the thoroctomy wound at every meal. The case was very thoroughly worked up, and Dr. Richard expects to publish it in full with a review of two other cases that were found in the literature. He asked, for this reason, that more complete account of this case be left until later.

In the discussion that followed Dr. Loria explained that perforation of the thoracic esophagus was practically invariably fatal. It was also said that such fistulae, with rest from irritation, would probably heal spontaneously—as practically all other fistulae. Dr. Ader explained that the esophagoscope might be of some help in such cases, to locate the exact point of disease, and for local treatment. In addition the case was discussed by Drs. Socola and D. C. Browne.

FRANK L. LORIA, M. D.

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL STAFF MEETING,

APRIL 10, 1929.

Abstract—Retro-cecal gangrenous appendicitis, with general peritonitis (tentative diagnosis), of three weeks standing.—Dr. J. A. K. Birchett, Jr.

Patient—Colored, male, age 26; occupation, store-keeper.

Complaint—Pain in abdomen in region of liver, radiating to back; fever; loss of strength; inability to get bowels to move.

Past History—No serious illnesses; general health good; malaria in 1927; denies venereal disease.

Present Illness—Suddenly taken ill three weeks ago, with severe pain in abdomen with nausea. Physician was called and gave something for pain. Three days later unable to get bowels to move and vomited foul smelling material; fever and abdominal discomfort. Bowels finally moved by enemata but fever and abdominal discomfort continued. Several days later again unable to obtain bowel movement and began to have severe cramps. Patient's wife administered salts and Pluto water and pain in abdomen became worse. Physician was again called and gave hypodermic injection for pain. Fever then went as high as 105° F.; abdomen was much distended; pain very intense in region of gall bladder and right lower costal margin.

Patient was seen in consultation at this time and diagnosis of peritonitis was made with possible sources of infection perforated ulcer, cholecystitis, or appendicitis. Hospitalization was advised and patient was admitted. On admission, pulse was 130; blood pressure 120/90; liver dullness unusually high on right; abdomen rigid, flat, and "boardy", and very tender in upper right quadrant and around to lumbar region. X-ray showed diaphragm on right in normal position.

Examination of blood showed: erythrocytes, 3,800,000; leukocytes, 28,000; differential count—small lymphocytes, 11 per cent, large lymphocytes, 5 per cent; polymorph. neutrophiles, 84 per cent; no malaria; Wassermann and Kahn tests negative. Urine examination showed nothing remarkable.

The condition appeared to be that of peritonitis following ruptured or perforation of an abdominal viscus. Patient was too ill for surgical interference. Blood transfusion and glucose were given and condition became gradually better. On the third day after admission, Widal test was positive for typhoid. With this important evidence, the case unfolded itself—typhoid fever with perforation and general peritonitis.

Abstract—Carcinoma of the gallbladder—excision.—Dr. A. Street.

Patient—White, female, aged 55 years married; never pregnant. Admitted to hospital April 10, 1929.

Complaint—Typical gall bladder colic, beginning five days ago; chill, fever, and persistent nausea and vomiting. Feels worse every second day. Bowels move freely but no clay stools.

Previous History—Frequent headaches for years; influenza recently. Impaired vision in right eye, which oculist told her was due to a

general disorder. Appetite and digestion good until onset of present attack, but has lost 56 pounds of weight in the last three years.

Family History—Not remarkable.

Physical Examination—Temperature 102° F.; pulse 90; respiration 20; blood pressure 125/80. Patient appears quite ill and weak. Slight jaundice. Respiration with a grunt, but not accelerated. There is marked tenderness in the right upper abdomen, increased by deep inspiration. Also definite tenderness in the right lower abdomen. No rigidity; no masses.

Blood—Hemoglobin 67 per cent; leukocytes 10,000; differential leukocyte count, small lymphocytes, 4 per cent neutrophils, 96 per cent; no malaria found. Blood urea nitrogen 11.2 mg. per 100 cc.; blood Wassermann negative.

Urine—Normal except for rare pus cells.

Gastric Contents—Total acid 41; free HCl, 24; combined acids 8; chemical, blood + +.

Cholecystography—Questionable gall bladder filling.

Radiographic—Stomach, duodenum and colon show no abnormal findings.

Hospital Course—Patient was given glucose solution intravenously, and no food by mouth. Nausea promptly subsided and general condition improved so that small amounts of nourishment were well taken. Operation of April 22, high right rectus incision. Stomach and duodenum normal; appendix normal. Dome of the fundus of gall bladder contains a densely indurated area, 3/4-inch in diameter, which fuses into the liver. Area of gall bladder proximal to this shows a thickened gray wall and contains fluid and one stone, 3/4-inch in diameter. Cholecystectomy was done, removing a layer of liver at the site of the growth.

Tissue pathology by Dr. Lippincott, shows adeno-carcinoma of the gall bladder (group III). The liver tissue shows chronic hepatitis and superficially a few cancerous cells. Culture of the fluid in the gall bladder shows profuse growth of bacillus typhosus.

Convalescence quite uneventful. Patient discharged from hospital in good condition on May 9, 1929.

Abstract—Peritonitis of obscure origin.—Dr. J. A. K. Birchett, Jr.

Patient—Colored, female, age 16 years, school girl and waitress. Admitted to hospital April 19, 1929.

Complaint—Pain in lower abdomen with cramps, began yesterday morning after eating breakfast. Was sitting in chair when cramp like pain was felt in the pit of the stomach and referred to lower abdomen. No desire to defecate; no urinary disturbance. Vomited but pain continued. Was given some milk of magnesia with slight relief. Patient was then admitted to the hospital with the advice of immediate operation for appendicitis. This was refused by the patient's parents. Ice bag and palliative measures were used for twenty-four hours when there was a chill and rise of temperature of 103° F.

Past History—No serious illnesses. Denies any venereal or urological symptoms. No previous digestive symptoms. Menstrual history normal.

Hospital Course—The abdominal signs became more marked with rigidity and abdominal pains becoming general. At this time the parents were prevailed upon to have an operation performed. The abdomen was opened under ether anesthesia and a good exposure obtained, through a McBurney incision. The peritoneum was congested; the viscera distended and purplish in color. There was a puddle of thick purulent exudate in depth of the incision.

The appendix was grayish and covered with plastic exudate but not perforated. Appendix removed by cauterization. The pelvis was exposed through physical examination had been negative. There was purulent exudate in the cul-de-sac and over both tubes, ovaries and uterus but the tubes were not adherent and were normal in size and shape. Had the general appearance of the other serous membranes. The upper abdomen was examined and a similar pool of pus found under the liver surface and gall bladder. The stomach and duodenum were normal, with no sign of perforation. The various pockets were drained and patient was able to be up on the eighteenth post-operative day, the only discomfort has been slight ileus and distention which cleared up on the eighth day.

As far as I can see, the source of the abdominal infection is obscure, unless it was a minute perforation of the appendix without the usual local signs. The case certainly began with the symptoms of an acute appendicitis.

Microscopic examination of the appendix showed some chronic inflammatory and an acute inflammatory limited to the surface.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of May besides the regular meeting of the Board of Directors, the Society held two scientific meetings.

At the meeting held Monday, May 13, papers were read and discussed as follows:

"Bacillary Dysentery in Louisiana", by Dr. Daniel N. Silverman; discussed by Dr. C. W. Duval, Dr. E. C. Faust, and Dr. Silverman, closing.

"Spinal Anesthesia," by invitation, Dr. Earl Garside; discussed by Dr. Urban Maes, Dr. Wilmer Baker, Dr. Frank L. Loria, Dr. H. W. Kostmayer, Dr. E. Denegre Martin, Dr. Monroe Wolf, Dr. A. Mattes, Dr. H. R. Unsworth, and Dr. Garside, closing.

"Some Results with Potassium Sulphocyanate in Hypertension," by Dr. P. J. Saleby; discussed by Dr. George Herrmann.

At the meeting held Monday, May 27, papers read and discussed as follows:

"The Oral Cavity in Certain Systemic Diseases", by Dr. John H. Musser; discussed by Drs. P. H. Jones, Jr., H. Dupuy, Chaille Jamison, D. N. Silverman and F. M. Johns.

"Prognostic Value of Daily Spinal Fluid Sugar Determination during Specific Serum Therapy of Meningococcal Meningitis", by invitation, Dr. J. H. Watkins; discussed by Drs. F. M. Johns, I. I. Lemann, J. H. Musser, P. H. Jones and Chaille Jamison.

"Post-Partial Care", by Dr. Walter Levy; discussed by Drs. E. L. King and H. E. Bernadas.

"Report on Medical Meetings held in Atlantic City", by Dr. Roy H. Turner.

The following members were elected to membership in the Society:

Active Members—Drs. John R. Flowers, Hebert W. Knight, E. S. Peterman and Jas. Lennard Smith.

Associate Member—Dr. Henry B. McIntyre.

An endeavor is being made to bring the list of active members up to 500. The members of the Board of Directors have been given the names of doctors in Orleans Parish who are not members of the Orleans Parish Medical Society and application blanks have been sent to these men.

During the past month bills were sent to the members carrying group insurance for the third quarterly premium of 1929. This premium will be due on June 5 and the members are re-

quested to send in their checks by the first of June in order that the Society may send its check to the home office on the due date.

TREASURER'S REPORT.

Actual Book Balance March 31.....	\$2,947.37
Receipt for insurance.....	195.60
Receipts during April.....	1,870.86
	<hr/>
	\$5,013.83
Expenditures in April.....	\$4,049.51
	<hr/>
Actual Book Balance.....	\$ 964.32

LIBRARIAN'S REPORT

Three hundred and sixty books have been added to the Library during April. Of these 17 were received by purchase, 19 from the New Orleans Medical and Surgical Journal, 113 by binding and 211 by gift. A list of the new titles of recent date is appended.

Three bibliographies have been added to our files, on subjects as follows:

Cannabis Indica, Mariahuana and Hashish .

Hemangioma of the Head.

Osteomata, Glioma and Carcinoma of Orbit.

The work of sorting and arranging the vast amount of Journal material given us by Dr. Van Wart has been finished. The files we have been able to add to our collection from this source will be of immense value to the library and every effort should be made to complete and bind them as soon as possible.

Gifts of books and journals have been received from the following persons and agencies:

Mrs. E. H. Eyer.

Dr. John A. Lanford.

Dr. H. R. Unsworth.

Dr. C. Jeff Miller.

Dr. J. H. Musser.

Dr. E. L. King.

Dr. Rena Crawford.

Jackson County Medical Society, Kansas City.

Academy of Medicine, Toronto.

South Carolina College of Medicine.

Tulane University School of Medicine.

Hoagland Laboratory, Brooklyn.

New York State Medical Society.

American Surgical Association.
Rhode Island Medical Journal.
State Medical Library, Des Moines.

NEW BOOKS—APRIL

Goepp—State Board Questions and Answers, 1920.

National Tuberculosis Association, Transactions, 1921.

Ballou—Ear, Nose and Throat Surgery, 1925.

Rockefeller Foundation—Hookworm and Malaria Research in Malaya, Java and Fiji Islands, 1920.

Coffey—Angina Pectoris, 1927.

Mellish—Wilson—Writing of Medical Papers, 1928.

Brooks—Angina Pectoris, 1929.

Leriche—Normal and Pathological Physiology of Bone, 1928.

Iboston—Partnerships, Combinations and Antagonisms in Disease, 1929.

Miller—Outlines of Gynecology for Students, 1927.

Rolleston—Aspects of Age, Life and Disease, 1929.

Pruitt—Injection Treatment of Hemorrhoids, 1929.

Miller—Hemorrhoids, 1929.

Jerman—Modern X-Ray Technique, 1928.

GOLF NEWS.—The first regular meeting of the Orleans Parish Medical Society's golf enthusiasts was held at the Metairie Golf Club, at the instigation and under the able management of Dr. Allan Eustis, Wednesday, May 29.

Some forty odd physicians, distinguished for their ability as doctors, rather than expert golfers, teeded off during the afternoons festivities. Cards were handed in by practically all the players who knew they had an opportunity of winning some prize of some kind if they only concealed their pride in their game and submitted their scores, no matter how high they were.

The first prize was won by the eminent pediatrician and ex-champion of the Louisiana State Medical Society, Dr. L. R. DeBuys, with the magnificent score of 89 gross, 70 net. The winner virtually spread-eagled his field, shooting a superb game, although some were so unkind as to insinuate that nineteen was a very remarkable handicap for such an accomplished master of the mashie and dealer in drivers.

The prize for the worst score was contested much more strenuously than was the battle for first place. The charming gentleman and emin-

Forrester — Imperative Traumatic Surgery, 1929.

Yeomans—Proctology, 1929.

Lambourne—Qualitative and Volumetric Analysis, 1928.

Harrower—Endocrine Diagnostic Charts, 1929.

Garrison—History of Medicine, 1929.

Manson-Bahr—Tropical Diseases, 1929.

Stitt—Diagnosis and Treatment of Tropical Diseases, 1929.

Lord—Pneumonia, 1929.

Graham—General Surgery, 1928.

Beeuwkes—American Med. and Sanitary Relief in the Russian Famine, 1921-23, 1926.

Philadelphia Zoological Society — Report of Laboratory and Museum of Comparative Pathology, 1926 and 1928.

Truitt—Child Guidance Clinic and the Community, 1928.

International Congress of Military Medicine and Pharmacy, Report, 1927.

Directory of Anesthetists, 1929.

N. Y. State Medical Society. Report of a Committee to make a study of Heart Disease in the State of New York, 1928.

American Surgical Association Transactions, 1928.

H. THEODORE SIMON, M. D.

Secretary.

ent surgeon but exorable golfer, Dr. T. B. Sellers, by taking five putts on the last green managed to take one more stroke than the famous pathologist, Dr. C. W. Duval and the illustrious internist Dr. I. I. Lemann who averaged even eights for the eighteen holes.

Blind holes were also contested but the eventual prizes fell to those who exhibited as much skill in indoor golf as the outdoor game. These splendid exponents of Scotch and African Golf who were rewarded with a dozen balls, were Drs. E. H. Lawson, Warren Rosen, Conrad Collins and Temple Brown.

The kickers tournament fell into the waiting hands of Dr. Harris, who proved himself an excellent guesser as well as a splendid companion, but only a mediocre golfer.

The collation, served at the Club House proved to be a feast of food and a fiesta of reason. It is hoped that another tournament will take place in June and that these meetings will occur monthly during the summer at the different clubs in the vicinity of New Orleans.

"A good time was enjoyed by all."

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

REPORT OF THE HOUSE OF DELEGATES TO THE GENERAL ASSEMBLY.

New Orleans, April 11, 1929.

To the Officers and Members, Louisiana State Medical Society.

Gentlemen:

The House of Delegates held three meetings during the Session of the Society, and transacted all official business presented to it. The officers, councilors and committees made their reports, and recommendations and subject matter were disposed of.

The following officers were nominated and elected:

President—Dr. Frank T. Gouaux, Lockport.

President-Elect—Dr. H. B. Gessner, New Orleans.

First Vice-President—Dr. C. M. Horton, Franklin.

Second Vice-President—Dr. F. C. Bennett, Monroe.

Third Vice-President—Dr. Roy B. Harrison, New Orleans.

Chairman House of Delegates—Dr. J. J. Ayo, Raceland.

Secretary-Treasurer—Dr. P. T. Talbot, New Orleans.

Past President—Dr. L. J. Menville, New Orleans.

Councilors:

First District—Dr. H. E. Bernadas, New Orleans.

Second District—Dr. Urban Maes, New Orleans.

Third District—Dr. C. C. DeGravelles, Morgan City.

Fourth District—Dr. S. C. Barrow, Shreveport.

Fifth District—Dr. D. I. Hirsch, Monroe.

Sixth District—Dr. John McKowen, Baton Rouge.

Seventh District—Dr. D. C. Iles, Lake Charles.

Eighth District—Dr. G. M. G. Stafford, Alexandria.

Delegate to American Medical Association—Dr. J. Q. Graves, Monroe.

Alternate-Delegate to A. M. A.—Dr. D. I. Hirsch, Monroe.

Next meeting of the Society will be held at Shreveport, Louisiana.

The following committees were re-elected:

Committee on Scientific Work: Dr. P. T. Talbot, Chairman; Dr. A. E. Fossier, Dr. Elizabeth Bass; all of New Orleans.

Committee on Public Policy and Legislation: Dr. B. A. Ledbetter, Chairman; Dr. E. L. Leckert, Dr. Roy B. Harrison, Dr. P. T. Talbot; all of New Orleans; Dr. Frank T. Gouaux, Lockport.

Committee on Publication: Dr. P. T. Talbot, Chairman; Dr. Chas. Chassaignac, Dr. Jules Dupuy; all of New Orleans.

Committee on Medical Defense: Dr. E. L. Sanderson, Shreveport; term of three years.

Committee on Hospitals: Dr. Chas. Chassaignac, Chairman, New Orleans; Dr. J. L. Scales, Shreveport; Dr. O. P. Daly, Lafayette; Dr. C. P. Gray, Monroe; Dr. A. J. Comeaux, Youngsville.

Committee on Health and Public Instruction: Dr. W. H. Seeman, Chairman; Dr. F. R. Gomila; both of New Orleans; Dr. G. M. G. Stafford, Alexandria; Dr. J. Q. Graves, Monroe; Dr. J. K. Griffith, Slidell.

Committee on Journal: Dr. Randolph Lyons and Dr. W. H. Seemann, both of New Orleans; for a term of three years each.

A committee from the East Baton Rouge Parish Medical Society submitted a report in relation to contract practice. Same was referred to the Council.

An amendment to the By-Laws was offered creating members at large whereby various government medical officers and etc. can be taken in as members of the State Society. The dues of the State Society were increased from \$4.00 to \$7.00.

The House of Delegates accepted the offer made by Tulane Medical College to provide for official quarters for the Louisiana State Medical Society in their proposed new building with thanks.

A very extensive report was made by Dr. Rudolph Matas, Chairman of the Committee on

History of the Louisiana State Medical Society. The House of Delegates viewed with favor the manner in which this work had been conducted and renewed their intentions of financing the project until its completion. It will be necessary to secure from those who have not already subscribed their willingness to aid this work in order that we may raise funds sufficient for its completion.

Resolutions were offered asking that the United States Government through their proper officers retain the present Veterans' Bureau Hospital located in Algiers for clinical purposes.

Suitable resolutions thanking the various agencies in New Orleans for their manifestation of cordiality and entertainment were passed as follows:

Whereas, The members and guests of the Louisiana State Medical Society who have been in attendance upon the 1929 meeting in the City of New Orleans are deeply appreciative of the many courtesies received, we beg to submit the following:

Be it Resolved, That we extend most sincere thanks to the members of the Orleans Parish Medical Society for their untiring and most effective efforts to make our stay in their midst pleasant and profitable, and especially do wish to thank the Committee on Arrangements and Entertainment, Dr. Paul J. Gelpi, Chairman, for contributing so much to our comfort and pleasure as well as to the success of the scientific and business programs,

Be it Further Resolved, That we extend our thanks to the Roosevelt Hotel for the splendid manner in which they have taken care of us,

Further Resolved, That we are deeply grateful for the delightful hospitality of the Soniat Memorial Mercy Hospital, Touro Infirmary, French Hospital, and the Tulane University College of Medicine,

Be it Further Resolved, That our thanks be extended to the press for the generous space devoted to our proceedings,

Be it Further Resolved, That our thanks be extended to the Ladies' Entertainment Committee, Mrs. C. V. Unsworth, Chairman; and to the Metairie Golf Club.

Be it further Resolved, That our thanks and appreciation be extended to our retiring President, Dr. Leon J. Menville, for his devotion and energetic effort which has contributed to the successful history of our Society for the past year.

Be it Further Resolved, That we extend our most profound thanks to our worthy and efficient Secretary-Treasurer, Dr. P. T. Talbot, for the splendid manner in which he has conducted the affairs of his office, which has been evidenced by the outstanding progress manifested in our State Society, and the high character of the scientific program offered at our present meeting,

That our thanks be also extended to our Assistant Secretary-Treasurer, Miss Mary V. Crossen, for her devotion to duty and discharge of work which has at all times been manifested,

Be it further Resolved, That we give expression to our appreciation of the splendid executive ability displayed by the Speaker of the House of Delegates, which has so signally characterized the administration of the present incumbent, Dr. J. J. Ayo.

Respectfully submitted,

P. T. TALBOT,
Secretary-Treasurer.

DR. GRANGER HONORED.

In recognition of his achievement in the science of radiology, on Thursday, April 24, 1929, Dr. Amedee Granger, head of the Department of Radiology in the Graduate School of Medicine of The Tulane University of Louisiana and director of the Roentgen-ray Department of Charity Hospital, was awarded the Gold Palmes Universitaires by the French Government. This is the highest university decoration awarded by France, and confers the title of officer of public instruction on the recipient. This honor has been awarded to only one other person coming under the jurisdiction of the consulate general of New Orleans.

Dr. Granger received the decoration from Maurice de Simonin, Consul-general of France in New Orleans.

The Palmes Universitaires (silver) was awarded Dr. Granger by France in 1921, in 1926 he received the gold medal from the Radiological Society of North America and in 1927 was given the first prize for the best individual scientific exhibit at the Radiological Society's annual convention, Alpha Omega Alpha, honorary medical fraternity, presented him with the key of honorary membership. He is past chancellor of the College of Radiology, an organization of Roentgen-ray specialists with a membership limited to 100, and holds honors in several National and Southern medical societies.

HEALTH OF NEW ORLEANS.

During the week ending May 4, there were total deaths of 154 with a death rate of 18.8. Practically the same figures of the corresponding week of last year. During the week of May 11, total deaths were 155 with a death rate of 18.9, a gain virtually unchanged from last year.

P. A. Dental Surgeon (R) S. P. Marshall. Directed to proceed from San Francisco, Calif. to Carville, La. by way of New Orleans, La., for the purpose of taking into custody at convenient places six leper patients, and accompany them to Carville.

On May 8, 1929, Prof. C. S. Holbrook, Asst. Professor of Psychiatry in the Graduate School of Medicine, addressed the School of Social Work of Tulane University of Louisiana on "Psychoses of the Affective Type."

Dr. Walter J. Otis, Assistant Professor of Neurology in the Graduate School of Medicine of the Tulane University of Louisiana, attended the following meetings held in Atlanta, Ga., from May 13, to May 17, 1929:

The American Psychiatric Association.

The American Psychiatric Association for the Study of the Feeble-minded.

The American Psycho Analytic Association.

The American Psycho Pathological Association.

Dr. Urban Maes left the city on April 24, 1929, for an absence of two weeks, to attend the meetings of The Thoracic Surgical Society, The Clinical Surgical Society and The American Surgical Association.

On May 1, 1929, Dr. H. Daspit addressed the School of Social Work of the Tulane University of Louisiana on "The Fundamentals of Psychiatry."

On May 8, 1929, Dr. C. S. Holbrook addressed the School of Social Work of the Tulane University of Louisiana on "Psychoses of the Affective Type."

ST. TAMMANY PARISH SOCIETY.

Meeting of St. Tammany Parish Medical Society on May 3 was held at the Mandeville Hotel, Mandeville, La., at eight o'clock at night. Those present were the President, L. Roland Young, and

H. D. Bulloch of Covington, A. G. Maylie and R. B. Paine of Mandeville. There being no quorum all formalities were dispensed with. Valuable talks by Drs. Lucien Ledoux and Randolph Unsworth of New Orleans were very much appreciated and created quite a bit of discussion. These two good Doctors were the guests of the evening. All had a good time and things were in the form of a regular round table discussion. After the meeting sandwiches and coffee were served.

L. ROLAND YOUNG, M. D., President,
St. Tam. Pr. Med. So. and acting Secretary.

THE SALMON MEMORIAL.

Hon. George W. Wickersham announces the establishment of the Thomas William Salmon Memorial to provide recognition to the scientist who had made the greatest contribution in the fight against mental disease during each year. Awards are to be national and inter-national and will provide for the wider dissemination of the knowledge of mental hygiene and insanity through cooperation with the New York Academy of Medicine, in whose hands the Administration of the \$100,000 fund is to be placed.

The Acting Surgeon General of the United States Public Health Service announces that the Second International Malaria Congress will be held in Algiers, May, 1930.

The Scientific Session of the American Heart Association will be held in Portland, Oregon, on July 9, 1929, during the meeting of the American Medical Association.

The officers of the Louisiana Dermatological Society for 1929-1930 are as follows:

President, Dr. M. T. Van Studdiford; vice-president, Dr. R. A. Oriol; secretary-treasurer, Dr. T. A. Maxwell.

UNITED STATES CIVIL SERVICE
EXAMINATION.

The United States Civil Service Commission announces the following open competitive examination:

BACTERIOLOGIST

Applications for bacteriologists must be on file with the Civil Service Commission at Washington, D. C., not later than July 3.

The examination is to fill a vacancy in the United States Public Health Service, Honolulu, Hawaii. The entrance salary is \$4,000 a year.

TRAINED NURSE—TRAINED NURSE (PSYCHIATRIC).

Applications for trained nurse and trained nurse (psychiatric) must be on file with the Civil Service Commission at Washington, D. C., not later than June 25.

ANNUAL REPORT OF THE EYE, EAR,
NOSE AND THROAT HOSPITAL.

The thirty-ninth Annual Report of the Eye, Ear, Nose and Throat Hospital shows that during the course of the year 1928, there was a grand total of 123,960 admissions to the Eye Department, and 169,177 to the Ear, Nose and Throat Department. There were 6,014 operations performed during the year. Despite the magnificent work that this institution is doing, Dr. Chas-saignac, Superintendent, shows that support is inadequate to meet the cost of running the institution. He suggests that the fine work must be lessened by curtailing the volume of free work if more money cannot be secured. He adds that "a third possibility, that of a lower degree of service is simply unthinkable."

A CORRECTION.

Through a misinterpretation of the stenographic notes made at the meeting of the House of Delegates, it was announced in last month's Journal that Dr. Hiram Kostmayer was elected third vice-president. On the contrary, Dr. Kostmayer simply nominated Dr. F. C. Bennett, of Monroe, who was elected. The editor wishes to apologize to Dr. Bennett for this error.

CORRESPONDENCE.

The following is a copy of a letter sent to the secretaries of all district and parish societies:

Woman's Auxiliary.

New Orleans, La., May 20, 1929.

Dr. H. T. Simon, Secretary,
Orleans Parish Medical Society.
Dear Doctor Simon:

During the late meeting of the State Medical Society the Woman's Auxiliary was organized.

As you know, "The object of the Auxiliary shall be to extend the aims of the Medical Profession, through the wives of the doctors, to the various women's organizations which look to the advancement of health and education; to assist in entertaining at all meetings of the State and local medical societies; and to promote acquaintance among the doctors' families, that closer fellowship may exist."

The membership of this Auxiliary shall be limited to wives of physicians in the parish, dis-

trict, or, in the absence of one or the other just mentioned, the State Medical Society. Daughters, mothers and sisters of physicians may be elected to membership. Those holding membership in the Louisiana State Medical Society, Woman's Auxiliary may of their election become members of the Southern Medical and the American Medical Associations, Woman's Auxiliary on payment of annual dues.

Until otherwise directed the dues for membership in this Auxiliary shall be one dollar per annum for each member.

As Secretary of the Orleans Parish Medical Society you are respectfully requested to bring this subject to the attention of the wives of your membership and we sincerely hope they will meet at an early date, organize and notify us. Our officers will gladly co-operate and we bespeak your assistance for the good of the cause.

Yours very truly,

MRS. OSCAR DOWLING.

The following ladies are the officers of the Woman's Auxiliary:

President—Mrs. Oscar Dowling, 1662 Valmont Street, New Orleans, La.

Vice-Presidents—Mrs. A. A. Herold, 1166 Louisiana Avenue, Shreveport, La.; Mrs. H. W. E. Walther, 424 Pine Street, New Orleans, La.; Mrs. J. A. White, 1740 Jackson Street, Alexandria, La.; Mrs. R. McG. Carruth, New Roads, La.

Secretary—Mrs. H. B. Gessner, 119 Audubon Boulevard, New Orleans, La.

March 28, 1929.

Dr. P. T. Talbot,
Manager New Orleans Medical and Surgical
Journal,
New Orleans, La.

Dear Doctor:

I am mailing you under separate cover a type-written copy of a paper on "Medical Ethics" which I read before the Bienville Parish Medical Society twenty-five or thirty years ago. I do not remember the year in which it was read but it was a short time after the visitation of this country by yellow fever the last time, as appears by reference to that subject in the paper. The Society before which it was read has had barely a nominal existence for a number of years and no records are available by which the exact date can be determined. I came across the manuscript a short time ago and it occurred to me that its publication in your Journal might be helpful in some respects to the younger generation of physi-

cians and possibly a pleasant reminiscence to some of the older members of the profession who may have heard me read the paper, if per chance there be any living. Not being personally acquainted with the editor-in-chief I am sending the copy to you which you may, if you will, submit to him, and if he and yourself consider it worthy a place in your Journal you may publish it. If not, kindly return the manuscript and there will have been no harm done. I am not offering the paper for publication because of any learning or merit it possesses but on account of the professional attitude and spirit it seeks to inspire. I some times fear that the profession of the present day is losing sight of the ethical side of the practice of medicine. I find the American Medical Association and myself were born in the same year and I have been a student and practitioner of medicine for considerably more than sixty years of this time, and during all these years have been a reader of the New Orleans Medical and Surgical Journal, and in my humble and feeble way have endeavored to uphold the honor and traditions of the profession. Am a member of the American Medical Association and of the Louisiana State Medical Society, and since 1915 have been an honorary member of the last named body.

With personal regards and best wishes, I am,

Sincerely yours,

F. M. THORNHILL, M. D.

(Am also member of Southern Medical Association.)

TO THE MEMBERSHIP.

Gentlemen:

As you known, this society has for a number of years, at the request of its members, been endeavoring to secure group insurance for the benefit of its members. At our last convention, a proposal was brought in at the last hour. It was brought over for the executive meeting, May 11, and it is now with pleasure we advise of its acceptance.

The Federal Union Life Insurance Company of Cincinnati, Frederick L. Walther, State Agent, 209 N. O. Bank Building, has offered a graded by age contract as follows:

Age 1 to 49 inclusive, \$3000 for \$39 per annum.

Age 50 to 59 inclusive, \$2000 for \$26 per annum.

Age 60 to 65 inclusive, \$1000 for \$13 per annum.

This is the group formula and cannot be changed. Each member in his respective group age takes the amount above mentioned "payable annually." It is the identical rate that the Orleans Parish Medical secured two years ago. A Master Policy and Roster showing each member will be issued to the Louisiana State Society; a certificate to each member showing the amount of his insurance and his designated beneficiary.

Any member leaving the society will be allowed the privilege of converting his group certificate in to any standard form of life insurance, without any examination or evidence of insurability, if requested within 30 days of his retirement from the society.

Now it is up to us—we must secure 51 per cent of our membership to put this over and the enclosed card with your check attached must be in our hands not later than June 15, 1929, which is the closing date. It is hoped you will reply at once—"We want this group coverage", "We must secure 51 per cent," "The time limit is short",—sign and complete the card, attach your check made payable to P. T. Talbot, Secretary—"Mail today".

We thank you,

P. T. TALBOT,
Secretary-Treasurer.

DR. F. T. GOUAUX, President.

The above communication has been sent out to the members of the Louisiana State Medical Society. To those whose notices may have gone astray for some reason or other, we would respectfully urge that you give this important opportunity of medical organization your serious and prompt consideration and return to us the cards properly executed along with check for the required insurance. This opportunity for group insurance should be eagerly supported by the members of our profession, being a real benefit to accrue as a member of organized medicine. We must get fifty-one per cent of our membership, and those interested in this proposition should use their powers of influence to explain to the membership the merits of this group insurance at such a small premium should be most attractive and appealing from an economical viewpoint.

—P. T. T.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor

REPORT OF HOUSE OF DELEGATES.

The twenty-sixth annual session of the House of Delegates of the Mississippi State Medical Association met on the Roof Garden of the Markham Hotel, Gulfport, May 14, 1929, at 8:15 A. M., with President W. H. Frizell presiding. Roll call showed twenty-nine members present.

Dr. W. L. Little was elected a member of the Budget and Finance Committee to succeed himself. Dr. J. S. Ullman was selected to represent Dr. Albert Hand on this committee during his absence.

The following report of the Secretary was read and received:

To the House of Delegates,
Mississippi State Medical Association,
Gulfport, Mississippi.

Gentlemen:

At the meeting of the Association in Meridian in 1928 the Committee on Budget and Finance in its report to the House of Delegates recommended that the annual dues of the Association be increased from three to five dollars. At the same meeting D. W. Jones and D. J. Williams introduced the following change in the By-laws:

"Change Section 1, Chapter X, of the By-laws, to read in part as follows:

"Section 1. An assessment of four dollars (\$4.00) per capita on the membership of the component societies is hereby made the annual dues of this Association, one dollar of which shall be set aside and used exclusively as a Medico-Legal Fund."

The membership of the Association has reached a high water mark, there being 1042 members for 1928. This is a healthy growth over recent years.

Charters have been issued during the year to the "Northeast Mississippi Thirteen Counties Society," and to the "Tri-County Society." These were the only ones applying for charters.

Respectfully submitted,

(Signed) T. M. DYE, Secretary.

May 14, 1929.

The Secretary's financial report was automatically referred to the Committee on Budget and Finance as was the Treasurer's report.

The report of the Committee on Arrangements was made by W. A. Dearman.

The following committee reports were received: Education, Publication, Scientific Work, Necrology and Hospitals.

At this point a recess of five minutes was had for the purpose of appointing a Nominating Committee by Council Districts. The selection resulted as follows:

1. J. W. Lucas, Morehead.
2. P. W. Rowland, Oxford.
3. J. Rice Williams, Houston.
4. T. J. Brown, Grenada.
5. Henry Boswell, Sanatorium.
6. J. W. Cooper, Meridian.
7. H. L. McKinnon, Hattiesburg.
8. R. D. Sessions, Natchez.
9. W. A. Dearman, Gulfport.

The following by-law, introduced at the 1928 session, was called up and adopted:

"Section 1. An assessment of four dollars (\$4.00) per capita on the membership of the component societies is hereby made the annual dues of this Association, one dollar of which shall be set aside and used exclusively as a Medico-Legal Fund."

The following resolution by the Northeast Mississippi Thirteen Counties Medical Society was read by Secretary Dye:

To the House of Delegates, Mississippi State Medical Association.

Gentlemen:

The Northeast Mississippi Thirteen Counties Medical Society, assembled in regular session at Okolona, March 19, 1929, one hundred members present, wish to offer the following resolutions:

1. Be it resolved, That we favor the creation and adoption of a Mississippi publication for the printing of all papers presented before the annual meetings of the Mississippi State Medical Association.

2. Be it resolved, That the transactions of the Mississippi State Medical Association together with those of the Woman's Auxiliary be printed separate from the papers and bound in a volume suitable for preservation.

(Signed) JAMES M. ACKER, Jr.,
Secretary.

The House then adjourned to meet again at 8 A. M., May 15.

The House of Delegates reassembled at 8 A. M. of May 15 pursuant to adjournment on May 14. Roll called showed forty-two present.

C. W. Patterson, Rosedale, fraternal delegate to the Arkansas State Society, made a report of his visit.

The Committee of Public Policy and Legislation made a verbal report.

A resolution introduced by Willis Walley instructed the Chair to appoint a committee to report on the advisability of creating a section on hospitals. The Chair appointed J. W. D. Dicks, W. L. Little and G. S. Bryan with instructions to report at the next meeting of the House.

A special committee appointed by W. H. Frizell during the year, composed of W. H. Anderson, E. F. Howard, J. S. Ullman and D. W. Jones, to investigate the feasibility of establishing a State Medical Journal, reported as follows:

To Dr. W. H. Frizell, President, Mississippi State Medical Association:

Your committee appointed to consider the question of whether or not the Mississippi State Medical Association should undertake the publication of its own journal, wishes to submit the following information, without recommendation:

- I. (a) The circulation of a Mississippi Medical Journal would not be greater than one thousand, the outside figure on membership.
- (b) Whereas under the present arrangement with the New Orleans Medical and Surgical Journal we have a circulation of about twenty-five hundred.
- II. (a) Under the present arrangement with the New Orleans Medical and Surgical Journal we are paying ninety cents per subscription, and out of this we get back \$300 per year paid out to Mississippi Editor for office expenses.
- (b) With a State Journal, handling papers for county societies, as well as the State Association papers, the per capita cost would be about \$3.00 per year for the first year, and about \$2.00 per year thereafter.
- (c) This would necessitate an increase in dues of the State Association of \$2.00 per capita for the first year and \$1.00 each thereafter.

Respectfully submitted,

(Signed) W. H. ANDERSON,
E. F. HOWARD,
J. S. ULLMAN,
D. W. JONES.

The same committee had been instructed to report on the publication of a history of the Association. Their report follows:

To Dr. W. H. Frizell, President, Mississippi State Medical Association:

Your committee appointed to consider the advisability of the Association compiling and printing a history of medicine in Mississippi, wish to report that we heartily endorse the suggestion, and recommend its execution.

(Signed) W. H. ANDERSON,
E. F. HOWARD,
J. S. ULLMAN,
D. W. JONES.

On motion of Joseph Green this Committee of the Mississippi State Medical Journal was instructed to continue investigations and report next year.

That part of the report relating to the history of the Association was adopted.

Several proposed changes in the Constitution and By-laws were read by the secretary and laid on the table for consideration at the next meeting of the House of Delegates.

The House of Delegates adjourned to meet at the close of the final adjournment of the General Session on the sixteenth.

Thursday, May 16, 1929.

The House of Delegates reassembled as per adjournment on the preceding day at ten thirty-five, Thursday morning, in the Ball Room of the Markham Hotel, President W. H. Frizell in the chair. Roll call showed fifty-four members present.

The following resolution was adopted:

"Resolved, That the Secretary of the Mississippi State Medical Association is hereby authorized and empowered to make application for \$3,000.00 additional group insurance for those members of said Association who desire this additional protection.

Be it further resolved, That said Secretary is not authorized to create any liability for said Association as a whole or its members individually, but each member must subscribe for and pay for his own group insurance."

The following vote of thanks was offered by J. S. Ullman and adopted by a rising vote:

"Resolved, That the Mississippi State Medical Association in session at Gulfport, May 14-16, 1929, express its thanks for and appreciation of the hospitality and courtesies shown by the Harrison

Stone-Hancock Society, the City of Gulfport and the management of the Markham Hotel, and to all others who contributed to our comfort and entertainment.”

The following proposed changes in the By-Laws introduced at Wednesday’s session were called up and adopted:

“Change Chapter IV, Section 1, by adding: ‘The Section on Radiology may meet independently and separately of the General Session.’”

“Change Chapter VII, add Section 5, as follows: ‘To the Historian shall be committed the duty of compiling and preparing for publication a history of the Association, which shall then be kept complete and written to date yearly. He shall make an annual report to the House of Delegates, which report must pass the scrutiny of the Committee on Publication.’

For the proper functioning of this office a provision shall be included in the yearly budget.”

Chapter IX, Section 1, add to the list of committees that shall not be appointed by the President the following: “The Committee on Publication.”

Chapter IX, Section 4, change to read as follows:

“The Committee on Publication shall consist of three members, an Editor and two associates: The Editor shall be named to hold office for a term of five years and the associates for terms each of two years, one associate being chosen at each annual meeting of the House of Delegates. This Committee shall be empowered to curtail or abstract papers and discussions, and any paper referred to it may not be suitable for publication may be returned to its author.

“This Committee shall have authority over all publications of the Association unless otherwise provided for.

“All papers read before the Association shall be its property.

“An appropriation to provide for its proper functioning shall be included in the yearly budget.”

T. E. Ross of Hattiesburg, one of the delegates to the 1928 session of the American Medical Association, made his report which was received.

The Committee on Budget and Finance reported a follows, which report was adopted: To the House of Delegates:
Gentlemen:

Your Committee on Budget and Finance has audited the reports of the Secretary and Treasurer and approves them.

The Treasurer, having asked instructions regarding the investment of the Defense Fund, is advised to invest in preferred securities of the sort generally purchased by conservative bankers, keeping on call, or in time certificates and amount sufficient to care for probable immediate needs. Such investments are to be made with the approval of the finance committee.

We recommend payment of the following accounts:

Councillor Jones	\$18.00
Councillor Robertson	2.50
	<hr/>
	\$20.50

We offer the following budget for adoption:

President’s expense account	\$100.00
Secretary’s salary	500.00
Secretary’s expense	100.00
Editor’s expense	300.00
Council’s expense	100.00
New Orleans Medical and Surgical Journal (approx.)	1,000.00
Transactions	100.00
Incidentals	50.00
Expenses of meeting (stenog., etc.)	300.00
Committee Public Policy and Legislation	250.00
	<hr/>
	\$2,800.00

(Signed) E. F. HOWARD, Chairman;
W. L. LITTLE,
J. S. ULLMAN.

J. W. D. Dicks reported for the Committee appointed to look into the advisability of adding a Section on Hospitals to the Scientific Sections as follows:

“Your Committee recommends that instead of adding a new section that the name of the Section on Hygiene and Public Health be changed to read ‘Section on Public Health, Hygiene and Hospitals.’”

This report was held for one year.

The Council reported through its secretary as follows:

“The Council met, as per notice, at 2 P. M.

Present—Dr. D. J. Williams, D. W. Jones, M. W. Robertson, J. W. Lucas, J. S. Donaldson, J. W. D. Dicks.

Absent—W. G. Gill, Sixth District; E. M. Gavin, Seventh District.

The Councillors filed their reports on the progress of medical organization in their respective districts.

A request from the doctors of Pike County to be allowed to withdraw from the Tri-County and form a County Society of their own, was granted and a charter ordered to be issued accordingly.

The Harrison-Stone-Hancock Society filed application for a new charter, and the Council recommends its issuance.

An appropriation of fifty dollars was voted for Dr. W. W. McRae, Corinth, Miss., to cover expense of expert testimony in the case of Perkins vs. McRae. In this case, the doctor won in a law suit carried through the Supreme Court. But he was insured in a protective association which took care of his lawyer's fees.

The Council wishes to go on record that it will ask for the resignation of any member thereof who failed to attend all the meetings of the Council, unless unavoidably prevented from doing so.

The Council wishes again to call attention of the membership to the method of procedure in case a member desires the Association to assist in the defense of a malpractice suit. This procedure is outlined in detail in Chapter Fourteen, Section Five, of the By-Laws.

Several meritorious cases have been turned down because the Council was not consulted in advance and given an opportunity to pass upon the merits of the case, as provided by the said By-Laws.

(Signed) DAN J. WILLIAMS, Chairman.
D. W. JONES, Secretary."

On nomination of S. W. Johnston, seconded by D. W. Jones, Vicksburg was selected by acclamation as the meeting place of the Association in 1930.

After the reading and adoption of the minutes of the preceding sessions the Nominating Committee reported as follows:

To the House of Delegates of the Mississippi State Medical Association:

Herewith is the report of the Nominating Committee:

President—Dr. Hugh Gamble, Dr. W. H. Anderson, Dr. W. G. Gill.

Vice-President—Dr. J. C. Cully, Dr. L. L. Minor, Dr. E. C. Parker.

Council:

First District—Dr. J. W. Lucas.

Members State Board of Health:

Sixth District—Dr. W. A. Dearman, Dr. W. W. Crawford, Dr. Joe E. Green.

Seventh District—Dr. N. L. Clark, Dr. W. H. Frizell, Dr. M. D. Ratcliff.

Eighth District—Dr. W. H. Watson, Dr. John Darrington, Dr. S. W. Johnson.

Delegate to the American Medical Association—Dr. W. H. Frizell.

Alternate—Dr. Henry Boswell.

Fraternal Delegate to Alabama—Dr. J. W. Lipscomb.

Fraternal Delegate to Arkansas—Dr. C. W. Patterson.

Fraternal Delegate to Louisiana—Dr. J. S. Ullman.

Fraternal Delegate to Tennessee—Dr. M. W. Robertson.

Respectfully submitted,

(Signed) W. A. DEARMAN, Chairman.
I. W. COOPER, Secretary.

W. G. Gill, rising upon a point of personal privilege, asked that his name be withdrawn as one of the nominees for president.

E. F. Howard and H. K. Tippin were appointed tellers. The vote for president resulted in the selection of H. A. Gamble, and the Chair declared him elected. W. H. Anderson moved that the election be made unanimous.

On motion of J. S. Ullman the Secretary cast the vote of the House for the remaining nominees, whereupon the House of Delegates adjourned to meet in Vicksburg May 13, 1930, at eight in the morning.

(Signed) T. M. DYE, Secretary.

The main building of the South Mississippi Charity Hospital, Laurel, is undergoing repairs and will get a new coat of paint. A new waiting and rest room for visitors is being built, also a new up-to-date dairy barn.

Dr. Temple Ainsworth, formerly House Physician at the Laurel General Hospital, is now one of the Resident Physicians at the South Mississippi Charity Hospital.

Dr. Oscar Dowling was a recent visitor to Laurel, spending the day with Dr. R. H. Foster.

Dr. Culpepper, Jr., of Honolulu, Philippine Islands, is visiting Laurel.

Dr. May Farinhold Jones, Sanatorium, who has been closely confined to her room since an attack of influenza several months ago, has returned to her native state of Virginia as she thought the change might be beneficial to her condition. Miss Fay Truelove, R. N., accompanied her on the trip to West Point, Virginia. Dr. Jones is missed at the Sanatorium, and her absence will be especially regrettable at the Children's Health Camp this year, where her services in administering to the ills of the camp kiddies were so valuable.

The State Children's Health Camp will be opened for the summer on June 3 this year with twenty-five children, and will operate for three months caring for three different groups of children.

The regular monthly staff meeting of the Vicksburg Sanitarium was held on May 10. Their program was as follows:

1. "Carcinoma of the Gall Bladder," Dr. A. Street.

2. "Peritonitis," Dr. J. A. K. Birchett, Jr.

3. "Intestinal Obstruction," Dr. H. H. Johnston.

4. "Atypical Pneumonia," Dr. J. Pearse O'Leary.

DR. H. A. GAMBLE,

PRESIDENT, MISSISSIPPI STATE MEDICAL ASSOCIATION.

Our new president needs no introduction to the profession of this state for he has long been known as a surgeon and a student. Dr. Gamble was born in Lee County, Mississippi, in 1876. His education was received in the public schools of his county and obtained his A. B. from the Mississippi Agricultural and Mechanical College. He was graduated in medicine by Tulane University in 1904. After practicing three years in Fairview, Louisiana, he moved to Greenville in 1907 where he has been in practice ever since.

Two hundred and sixty members were in attendance at the state association meeting and enjoyed Gulfport's hospitality which was quite up to its usual standard.

EFFECT OF LIVER ON BLOOD SUGAR LEVEL.—A study made by Harry Blotner and William P. Murphy, Boston, of the effect of liver feeding on the blood sugar indicates that whereas previously liver has been regarded as an unsuitable article of food for diabetic patients because of its glycogen content, it is now known to have a beneficial effect on the blood sugar of these patients. The liver fractions that are effective in the treatment of pernicious anemia have no effect on the blood sugar, whereas certain liver fractions that are ineffective in the treatment of pernicious anemia have an effect on the blood sugar like that of liver. Four patients with diabetes taking liver daily or from three to five times a week have been observed with repeated blood sugar determinations for approximately one year, while in two who were followed for twenty and thirty days it was found that the blood sugar has remained at a constantly lower level than previous to liver therapy. These observations suggest that liver contains a blood sugar reducing substance active when taken by mouth, nontoxic,

and with an effect on the blood sugar concentration similar to that obtained with insulin. It is difficult to estimate the quantity of liver that will replace a known amount of insulin, but the authors feel that 180 Gm. of liver will have an effect on the blood sugar of diabetic patients equal to that of from 10 to 15 units of insulin.—*Jour. Am. Med. Assn.*, 92:1332-1336, 1929.

OUT OF HIS LINE.—On the question of vivisection the voices of two notables have been heard recently in Baltimore. One was Dr. William H. Welch, a physician, the other Mrs. Irene Castle, a dancer.

Surely, it is unnecessary for The Evening Sun to explain that it has the highest respect for Dr. Welch. Yet, if the question at issue had involved either dancing or clothes and anyone had called on Dr. Welch to express an opinion on it we should have regarded the effort to drag him into it as downright silly.—*Baltimore Evening Sun*.

BOOK REVIEWS

Lipiodol in the Diagnosis of Thoracic Disease:

By F. G. Chandler, M. A., M. D. (Cantab.), F. R. C. P. (Lond.), and W. Burton Wood, M. A., M. D. (Cantab.), M. R. C. P. (Lond.). New York, Oxford University Press. 1928. p. 133.

An excellent monograph on a most important subject. The nature and history, the therapeutic value, the indications, contra-indications and limitations and the methods of use are all treated briefly but most satisfactorily. Some may object to the bare treatment given the simple "swallowing" method and the recommendation of the more difficult and dangerous crico-thyroid route. The references to the literature are numerous. The numerous illustrations are excellent.

I. L. ROBBINS, M. D.

The Diagnostics and Treatment of Tropical Diseases: By E. R. Stitt, A. B., Ph. G., M. D., Sc. D., LL. D. 5th ed. rev. Philadelphia, 1929. P. Blakiston's Son & Co. 1929. pp. 918, 249 illus.

This beautifully and substantially bound volume by the Dean of American Tropical Medicine is far more than its name implies. It is an all-round manual of tropical diseases, including the etiological, biological, and epidemiological, as well as pathological and clinical aspects of the subject. The subject-matter is satisfactorily grouped, so that the reader by glancing at the table of contents may readily find the general topic in which he is interested. A careful study of any one chapter provides sufficient information to give an intelligent background for the particular disease. Thus such topics as malaria, the trypanosomiasis, amebic dysentery and amebic hepatitis, bacillary dysentery, cholera, plague, leprosy, the filterable-virus diseases, hookworm and filarial infections and the schistosomiasis all receive careful consideration, while the more recently recognized entities, tularaemia, melioidosis and Oroya fever are also included. The chapter on yellow fever includes mention of the recent transmission work of Bauer (1928) in West Africa and the vaccine investigations of Hindle (1928), while the work of Kirby-Smith, Dove and White on "creeping eruption" due to the larvae of *Ancylostoma braziliense*, also receives mention, although under the strange section of "Larvae Causing Myiasis."

Well-balanced discussions of the deficiency diseases, with particular stress on beriberi, pellagra and sprue, are presented. In view of the general distribution and importance of fungus diseases of the skin and viscera in the tropics, it seems unfortunate that more space is not given to the section.

Over two hundred pages are devoted to clinical and laboratory diagnosis, in which there is found a wealth of valuable information not only on diagnosis but on the preparation of media and cultures, methods of examination of the body excreta and anatomical and physiological normals.

With a volume such as Admiral Stitt has made available for American practitioners in warm climates there is little need to look to foreign sources for information or inspiration in this important field of American medical practice.

ERNEST CARROLL FAUST, Ph. D.

Qualitative and Volumetric Analysis for Medical

Students: By H. Lambourne, M. A., M. Sc., F. I. C., and J. A. Mitchell, M. Sc. London, Oxford Univ. Press. 1928. pp. 64.

The first part of this hand-book contains in condensed form a considerable mass of information about qualitative chemical analysis, particularly inorganic but with some attention given to organic substances. In the remaining two-thirds of the booklet, there are discussed in detail various volumetric quantitative methods. Normal solution are described and their value indicated. Implicit explanations with the use of numerous equations may be said to be a feature. A student familiar with the material presented here would be well prepared to study the methods of biochemistry of importance in medicine.

R. C. CORLEY, Ph. D.

Spinal Anesthesia: By Charles H. Evans, M. D., with Introduction by W. Wayne Babcock, M. D., F. A. C. S., and Foreword by Charles Gordon Heyd, M. D., F. A. C. S. New York, Paul B. Hoeber. 1929. pp. 203.

With the present widespread interest in spinal anesthesia, Dr. Evans' monograph comes as a timely contribution. He has given a survey of the literature which is thorough and is evaluated with fairness. The author's experience leads him to prefer novocaine (neocaine), and the technique outlined concerns the method of using this drug in pure crystalline form. It is gratifying to notice the conservative attitude which is adopted and is emphasized especially by chapters on Complications, Mortality and Causes of Failures.

In the foreword Dr. Heyd has appropriately written, "A perusal of Dr. Evans' monograph will indicate when, how, and why the surgeon should employ spinal anesthesia."

Racial Hygiene: Thurman B. Rice, A. M., M. D.
New York, The Macmillan Company. 1929.
pp. 376.

Although misnamed this is an excellent publication. It does not deal with hygiene, in the sense that we commonly use the term, but rather with eugenical problems. The first part of the book treats mainly with the mechanism of heredity, thus furnishing the background for the important discussions of the problems of eugenics that follow. Sociological problems are discussed from the standpoint of heredity. The author, throughout the book, makes a strong appeal to those of hereditarily superior quality to face the danger of being overrun by the hereditarily inferior. Scientific evidence to support his statements is not lacking.

The book is clearly and interestingly written and cannot help furnishing food for thought among those interested in preserving our American white stock. Technical terminology is omitted as far as possible without sacrificing scientific accuracy. An attempt is made to treat the subject in such a way that the general reader, without biological training, may know and understand the facts concerning human heredity and racial betterment. It is a contribution well worth reading and is a valuable addition to the all too meager list of books on scientific subjects that the general reader is able to understand.

IRVING GRAY, A. M., Ph. D.

Methods of Biological Assay: By J. H. Burn, M. A., M. D. (Camb.). London, Oxford University Press. 1928.

This small volume is a combination of manual and criticism of proposed and accepted biological assay methods. Repeated reference is made to the reports of the 1925 Geneva Conference. Technique is described for the assay of the digitalis group, posterior pituitary, insulin, arsen-obenzene, ergot, adrenalin, ovarian hormone, parathyroid hormone, thyroid, and several other substances of less general interest. The assay of vitamins is not mentioned. Worthy of careful study by those interested in this field, it is not a complete guide for use in this country.

B. J. C. REYNOLDS, B. Sc.

Year Book of General Surgery: Ed. by Evarts A. Graham, A. B., M. D. (Practical Medicine Series.) Chicago, Year Book Pub. 1928. pp. 800.

The present volume gives in abstracted form the annual review of the surgical literature of the world, laying stress as usual on many articles of particular interest which have been published during the year.

Among these is the work that suggests the control of paralytic-ileus by splanchnic anesthesia; the treatment with satisfactory results of varicose veins by injection methods; the good results obtained in the treatment of erysipelas by Birkhaug's serum; the use of iodine both in the prevention and treatment of goiter and that in all sorts of infections in various parts of the body the iodine content of the thyroid gland is greatly reduced.

The more recent work on the origin of acute dilatation of the stomach and the controversy of gastro-enterostomy versus extensive resection of the stomach in cases of peptic ulcer, which is still going on unabated, are discussed at length. The author feels that the enthusiasm for extensive resections in cases of peptic ulcer represents only a passing fad and fancy.

The entire book is not only easily readable, instructive and practical but also gives an authoritative answer to the salient practical points of current surgical progress in a condensed and easily obtainable way.

PAUL G. LACROIX, M. D.

Pneumonia: By Frederick Taylor Lord, M. D., A. B. Cambridge, Harvard Univ. Press. 1929. pp. 84.

This is the second edition of an excellent brief monograph on the subject of Pneumonia. The most notable advances in the various phases of the disease are discussed.

I. L. ROBBINS, M. D.

Contribution to the Study of Heredity in Tuberculosis: By Dr. R. Pla y Armengol, Director of the Institute Ravetllat-Pla, pp. 1-45, Oct., 1926.

On the Variability in the Reactions of the Specific Products of Tuberculosis. pp. 1-19, Dec., 1927.

The Polymorphism of the Tuberculous Virus: By Dr. F. J. Velez, Former Intern of the Rothschild Sanitarium of Berck Plage, France.

Short Course on the Surgical Tuberculoses: By Dr. Joaquim Lopez, Abadia, Surgeon to the Bilbao Hospital. Illus. 1925. pp. 1-166.

Contribution to the Experimental Study of Nuclear Inversion (the Velez Sign) in Tuberculosis. pp. 1-19, by Dr. Pla y Armengol and associates. pp. 35.

The above publications (in Spanish) from the Institute Ravetllat-Pla, of Barcelona, Spain (founded by Drs. Ravetllat and Pla for the study and treatment of tuberculosis) have been received.

The preponderance of the trinuclear type of polymorphonuclear neutrophils in the differential leukocyte count is sufficient to exclude the diagnosis of tuberculosis. With blood of normal individuals the binuclear neutrophils constitute an average of 34-35 per cent; and the trinuclear represents 41-43 per cent. In normal individuals the number of the trinuclear polymorphonuclear neutrophils is always in excess of the binuclear neutrophils.

Whenever the binuclears exceed the trinuclear polymorphonuclear neutrophils in the differential count, it is then said that "inversion in the nuclear count" has occurred. This is known as the "Velez sign" of tuberculosis. In their experimental and clinical research the authors show that nuclear inversion as above described is a constant accompaniment of active tubercular processes. This sign, however, is not specific or pathognomic of tuberculosis, since it has been observed in cancer and leprosy and as a transitory sign in other experimental infections in the guinea pig (typhoid and diphtheria, staphylococcal, streptococcal, micrococcus, melitensis and avian coccobacteria), but clinically its constant presence in acute tuberculosis makes the "Velez nuclear inversion" a valuable differential blood character when cancer and leprosy can be excluded.

These and other contributions of great value from the clinical and experimental point of view are issued periodically from the Institute and are available to all students interested in tuberculosis by addressing directly to the Institute in Barcelona, Spain.

R. M.

Practical Clinical Laboratory Diagnosis: By Charles C. Bass, M. D., and Foster M. Johns, M. D. 3d ed. rev. Baltimore, The Williams & Wilkins Company. 1929. pp. 187.

The third edition of this well known clinical laboratory guide has been entirely rewritten, recast, and in part re-illustrated. However, the original idea has been adhered to of including in the volume only the clinical laboratory procedures that are practical and may be carried out efficiently by a man in active practice. Only the simplest and most useful methods have been described. This necessarily makes for dogmatism, but specific, positive and definite statements are of value in outlining various tests which have become more or less standardized as a result of long use by the authors, who are certainly more than well qualified to select their subject matter. The book is admirably printed, the illustrations are clear cut, well selected, while some of the colored plates are really magnificent artistic efforts. The reviewer has to congratulate the authors on their splendid work. The medical

profession is fortunate in having such a clear cut well written practical book on laboratory diagnosis for their use.

J. H. MUSSER, M. D.

Surgery in the Tropics: By Sir Frank Powell Connor, D. S. O., F. R. C. S., D. T. M. & H. Philadelphia, P. Blakiston's Son & Co. 1929. pp. 293.

The scope of this book is for the most part confined to the surgical aspects of tropical diseases and their complications. An ordinary knowledge of surgery, surgical pathology and after-treatment is taken for granted; hence, most of these details are omitted. Also, due to the limitation of time, a fuller discussion of the tropical aspects of the surgery of neoplasms, abdominal surgery and special branches of surgery have been omitted.

The entire book, especially the chapters on Filaris, is replete with many very excellent and wonderfully clear illustrations.

On account of its brevity this book can act, as its author says, only as a supplement to the many excellent text-books of tropical medicine.

PAUL G. LACROIX, M. D.

Recent Advances in Neurology: By W. Russell Brain, M. A., D. M. (Oxon.), M. R. C. P. (London), and E. B. Strauss, B. A., D. M., B. Ch. (Oxon.), M. R. C. P. (London). Philadelphia, P. Blakiston's Son & Co. 1929.

The scientific results by our London confreres are revealed in this latest book on neurological subjects and collaterals. The book details special subjects and procedures with what may be termed a compilation of regional neurology inasmuch as it gives to us the abnormal functions with their sequelae of various locations of the cerebrum and cerebellum. It is of the newer plan of placing these studies before the medical profession inasmuch as when one is in search of certain symptoms concerning certain neurological ailments, one has only to turn to paragraph or chapter in the book which directly enlightens as the case requires.

The chapter describing the Spinal Fluid is interesting and complete, likewise the one on Epidemic Encephalitis. Sleep, Normal and Pathological, in Chapter 14, is given much detail reading, the authors having gone into this most conclusively with special reference to pathological sleep, which today is given more cognizance than heretofore, as many of us are dealing with post-war psychic episodes which we are constantly meeting in ex-service men.

It is interesting to note their resume on Therapeutic Malaria which is illuminating.

The resume of terms is carried out sequentially and thoroughly. The reproduction of radiograms are unusually clear, distinct and perfectly readable. To sum up, these authors demonstrate through this volume the complete understanding with the proper up-to-date handling of this, Recent Advances in Neurology.

WALTER J. OTIS, M. D.

Urological Roentgenology: By Hugh H. Young, M. D., and Charles A. Waters, M. D. New York, Paul B. Hoeber, Inc. 1928. pp. 496.

This excellent contribution by Young and Waters forms volume seven of a series of monographic atlases entitled the annals of roentgenology. The work is illustrated with 518 urograms and drawings by Didusch. Nothing so pretentious has yet appeared on the subject of roentgenologic diagnosis in urological conditions. The work might easily be considered a complete post-graduate course in the diagnosis of genito-urinary lesions as brought out by means of roentgen-ray aid.

In the introduction Young emphasizes the necessity of combined efforts of roentgenologist and urologist, if we are to expect accurate diagnoses in many obscure lesions of the urogenital apparatus. He illustrates his point with case-records and accompanying roentgen-ray films. The topography, anatomy and physiology of the urinary tract are fully dealt with. The chapter on renal anomalies form one of the most interesting in the book. The cases observed of solitary kidney with two ureters and two pelves are of particular interest to those doing renal surgery and who, even today, will attempt nephrectomy without being absolutely certain that the patient has two kidneys to begin with. Too much praise cannot be given Didusch for his drawings. Fig. 116, for example, of bilateral cystic kidneys, made at autopsy, definitely establish Didusch's work as probably the best that is being done in America today.

The urograms and the case-records illustrating obstructive conditions of the urinary tract are unusually good. In the chapter dealing with urogenital infections and infestations again the urograms of Waters graphically depict the lesions so well described in the case-records. The entire work is one of case-records illustrated so beautifully that, as has already been stated, it is a post-graduate course of the highest type and a copy of this book is sadly needed in every hospital library as well as in the library of every urologist and general surgeon doing urological work.

Tuberculosis of the genito-urinary tract is given proper attention. Urinary lithiasis occupies 109 pages of the work, mostly urograms and

photographs. The experiences at the Brady Urological Institute with stone has been most vast, as is plainly seen by the interesting photographs of the innumerable variety of calculi observed by Young at this Clinic. The use of the opaque catheter and shadow-casting media, in localizing stone, is demonstrated in a long list of roentgenograms.

Tumors of the urogenital tract have, up until recently, been missed in too many instances of hematuria of so-called idiopathic type. The urograms Waters shows, especially those in which tumors of the renal pelvis was demonstrated, are most convincing. Cystograms, where one suspects bladder tumor or prostatic new-growth or diverticular, furnish most valuable information. This is particularly true in those instances where, for one reason or other, cystoscopy proves impractical. There is an index to the text at the end of the book which makes it easy for one to quickly locate the subject in which he is interested and thereby compare case-histories and urograms with his own cases under investigation. This work fills a place long vacant among the list of books necessary for the intelligent practice of urology.

H. W. E. WALTHER, M. D.

Modern X-Ray Technic: By Ed. C. Jerman. Saint Paul, Bruce Publishing Co., 1928. pp. 260.

The author of this book is well known to the American radiologists. He has contributed from time to time interesting and instructive articles on x-ray technic. His great experience as an x-ray technician gives his book instant approval and it will be of valuable service, not alone to the beginner in roentgenology but also to those of more experience.

There are twenty-one chapters, and 248 pages in this book, along with many interesting and beautiful illustrations. The author gives a clear explanation of the most modern methods employed in producing accurate and beautiful roentgenograms.

LEON J. MENVILLE, M. D.

Aspects of Age, Life and Disease: By Sir Humphry Rolleston, Bart., K. C. B., M. D., Hon. D.Sc., D. C. L. LL.D. New York, The Macmillan Co., 1929. pp. 304.

This volume of papers dealing on subjects allied to medicine is worthy of note by all physicians. The material and the mode of treatment reflects the literary skill and the extensive knowledge and reading of the author.

I. L. ROBBINS, M. D.

The Normal and Pathological Physiology of Bone: Its Problems: By R. Leriche and A. Policard. Authorized English translation by Sherwood Moore, M. D., and J. Albert Key, M. D. St. Louis, C. V. Mosby Company. 1928. pp. 236.

The book is the result of ten year collaboration by the authors. The problem of osteogenesis has passed through many phases. It has been histological and surgical. It is now the turn of the chemists and physicists. When they have solved certain pending questions, it will be possible to resume with profit the studies of the past. We can then progress, and, perhaps, have bone formed at will, accelerate the union of fractures, and prevent the pathological and physiological rarefactions of bone. The translators believe that the work should prove useful to the orthopedic surgeon, the general surgeon, the orthodontist, and above all, the radiologist. Of particular interest are the chapters on the Repair of Fractures, on Transplantations and on Heterotopic Ossifications.

HENRY LAURENS, Ph. D.

Angina Pectoris: By Harlow Brooks, M. D. New York, Harper & Brothers. 1929. pp. 164.

A very splendid treatise on an extremely important disease by one of the best known authorities in the country. It can be read with tremendous profit by the physician whether interested primarily in cardiology, or concerned with some other branch of medicine.

J. H. MUSSER, M. D.

Partnerships, Combinations, and Antagonisms in Disease: By Edward C. B. Ibotson (Lond.), B. S. Philadelphia, F. A. Davis Company. 1929. pp. 348.

This volume is not a presentation of original work done by the author. The observations have been drawn from the work of a wide field of investigators in England, Europe and the United States and to these the author has contributed liberally from his own wide experience. It is not an attempt to present disease from the standpoint of symptoms, signs and treatment, but rather to present the many disease groups from the broader aspect of their relationship and interrelationship one to the other.

One of the notable things of this volume is the swing of the pendulum backwards to the old theories of the Diatheses. This will be observed in the heading of several chapters: Relations of Diatheses, Relations of Tuberculosis and Diatheses.

The author has gone to great length to set forth the many factors which may influence, for

good or bad, the tendencies of the various disease groups. For example, under the general heading Tuberculosis we find such sub-groups: Tuberculosis and Cancer, Tuberculosis and Syphilis, Syphilitic Phthisis Overlooked, Syphilitic Soil, etc. The reviewer has enjoyed the opportunity reading this volume and feels that he has been much benefitted thereby. The subject matter is of much interest, instructively presented and quite up to date.

J. HOLMES SMITH, JR., M. D.

Imperative Traumatic Surgery, With Special Reference to After-Care and Prognosis: By C. R. G. Forrester, M. D., F. A. C. S. New York. Paul B. Hoeber, Inc. 1929. pp. 464.

The entire book is a presentation of the author's personal experiences and as such gives only the methods which have been successful in his hands.

Emphasis is placed upon the immediate treatment, prognosis and after care of traumatic conditions. The responsibility of the surgeon both to the injured and the company is discussed at length. The necessity for the more frequent use of the roentgen-ray as an adjunct in traumatic surgery is briefly but clearly discussed. The chapter on Injuries to the Head is rather inadequate. Too much stress is placed on the now obsolete classification of head injuries with reference to the location and type of fracture of the skull and the use of hypertonic saline solution in preference to glucose solution to reduce intra-cranial tension; the former on account of its toxicity should be mentioned only to be condemned. The chapter on Peripheral Nerve Injuries is direct, clear and brief, including at the same time the important points relating to the diagnosis, prognosis and treatment. Another noteworthy feature is that the operative treatment of fractures is recommended only when all other methods have failed.

As this book deals entirely with the personal experiences of the author, it cannot be classed as a complete and standard text on traumatic surgery; in this respect, it can only be of limited value to the surgeon doing this particular work.

PAUL G. LACROIX, M. D.

The Writing of Medical Papers: By Maud H. Mellish-Wilson. Philadelphia, W. B. Saunders Company. 1929. 3rd Edition. pp. 184.

A small book that should be on the desk of every medical man who does any writing whatsoever. Filled with helpful suggestions as to arrangements of manuscripts, carrying rules of punctuation, grammatical notes as well as standard abbreviations for preparation of bibliographies, the book should be of inestimable value to the prospective author.

J. H. MUSSER, M. D.

An Outline of Gynecology for Students: By C. Jeff Miller, M. D., F. A. C. S. New Orleans, Privately printed. 1928. pp. 271.

As stated by the author, this work of 271 pages is written solely for the purpose of affording a convenient manual for the use of students. Naturally, only the essentials of the subject are covered, controversial topics being eliminated. Descriptions of operations, as well as illustrations, are likewise eliminated, the student being referred to the standard textbooks for these details.

The various gynecological conditions are thoroughly yet concisely discussed, and the presentation is particularly valuable and authoritative because of the author's wide experience and mature judgment. A wise conservatism is the dominant note, yet radical measures are advocated in situations demanding their employment.

The book is well written and hence is thoroughly "readable", and will serve a useful purpose in the field for which it is designed. It merits more than merely local circulation.

E. L. KING, M. D.

Pathology for Students and Practitioners: By Edward Kaufmann, M. D., tr. by Stabley P. Reimann. Philadelphia. P. Blakiston's Son & Co. 1929. 3v.

This monumental work on Pathology, in three volumes will be most welcome to the pathologist and all students of medicine. The author has interwoven embryology, anatomy, physiology, pathologic physiology, pathologic anatomy, and appropriate clinical features into an harmonious whole. There are twelve groupings under which diseases are discussed in gratifying detail, as digestive, respiratory, etc.

A complete index accompanies each volume and the third volume contains 224 pages of bibliography. The very numerous illustrations, appearing on almost every page, obviously add greatly to the work. Few details are shown by actual high magnificative photo-micrographs, but the author more than makes up for this by the many informative sketches, diagrams and full legends which serve to convey ample knowledge of the subjects pictured.

The aim of both the author and translator is to make this work something more than a discussion of dead tissue, and in this they have succeeded. Professor Reimann, deserves great praise and thanks for his translation and for his own

contributions to the subject matter embodied in his supplementary remarks.

The reviewer feels that this is a vast mine of information which will be consulted and appreciated by many.

S. J. LEWIS, M. D.

PUBLICATIONS RECEIVED.

Williams & Wilkins Company, Baltimore: *The Toxemias of Pregnancy*, by H. J. Stander.

W. B. Saunders Company, Philadelphia and London: *Physical Therapeutic Technic*, by Frank Butler Granger, A. B., M. D. *Clinical Electrocardiograms*, by Fredrick A. Willius, B. S., M. D., M. S. *Introduction to the History of Medicine*, by Fielding H. Garrison, A. B., M. D. *Writing of Medical Papers*, by Maud H. Mellish-Wilson, 3d rev. ed. *A Manual of Diseases of the Nose, Throat, and Ear*, by E. B. Gleason, M. D., LL.D. *Surgical Pathology*, by William Boyd, M. D., M. R. C. P. Ed., Dipl. Psych., F. R. C. S. Can.

William Wood and Company, New York: *Protozoology*, by John Gordon Thomson, M. A., M. B., Ch. B. and Andrew Robertson, M. B., Ch. B. *A Manual of Helminthology*, by H. A. Baylis, M. A., D. Sc.

Longmans, Green, and Co., London, New York, Toronto: *Quain's Elements of Anatomy*, eleventh edition, editors, Thomas Hastie Bryce, M. A., M. D., F. R. S. and Thomas Walmsley, M. D., 4 vols. Vol. IV, Part III, *The Heart*, by Thomas Walmsley.

D. Appleton and Company, New York and London: *Principles of Pathology*, by H. D'Arcy Power, M. D., F. R. P. S. and William W. Hala, M. D. *A Surgical Diagnosis*, by J. Lewi Donhauser, A. B., M. D., F. A. C. S.

C. V. Mosby Company, St. Louis: *Diseases of the Thyroid Gland*, by Arthur E. Hertzler, M. D. *Diseases and Deformities of the Spine and Thorax*, by Arthur Steindeler, M. D., F. A. C. S.

The MacMillan Company, New York: *The New Psychology of the Unconscious*, by C. W. Valentine.

F. A. Davis Company, Philadelphia: *Diagnostic Methods and Interpretations in Internal Medicine*, by Samuel A. Loewenberg, M. D., F. A. C. P. *Textbook of Clinical Neurology*, by M. Neustaedter, M. D., Ph. D.

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